Joint Pub 3-50.21

Joint Tactics, Techniques, and Procedures for Combat Search and Rescue

23 March 1998

PREFACE

1. Scope

This publication provides joint tactics, techniques, and procedures for combat search and rescue throughout the range of military operations.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine and selected joint tactics, techniques, and procedures (JTTP) to govern the joint activities and performance of the Armed Forces of the United States in joint operations and provides the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders and prescribes doctrine and selected tactics, techniques, and procedures for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the joint force commander (JFC) from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

3. Application

a. Doctrine and selected tactics, techniques, and procedures and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine (or JTTP) will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

For the Chairman of the Joint Chiefs of Staff:

DENNIS C. BLAIR
Vice Admiral, US Navy
Director, Joint Staff

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Introduction

Combat search and rescue (CSAR) is a specific task performed by rescue forces to effect the recovery of distressed personnel during war or military operations other than war. CSAR is an element of personnel recovery (PR).

Combat search and rescue (CSAR) missions may occur across the range of military operations normally in support of air operations. CSAR transcends component functional responsibilities and organizational boundaries. All Service members, whether participating in single-Service or joint operations, must be thoroughly familiar with CSAR operations. **Successful CSAR operations enhance a joint force commander's (JFC's) capabilities** by returning valuable resources to friendly control, by denying adversaries opportunity to exploit the intelligence and propaganda value of captured personnel, and by maintaining force morale.

The Scope of Operations

The scope and scale of CSAR operations vary widely.

While CSAR operations typically focus on downed aircrew personnel, they may be conducted to recover any friendly personnel. **The scale of CSAR operations may require forces ranging from a single asset to complex task forces** involving assets from several components. The potential complexity and scale of CSAR operations dictate the need for theater-level planning, and properly organized, trained, and equipped forces, as well as clear guidance for command and control. **It is essential that commanders prepare their forces for CSAR operations** prior to their employment in hostile or potentially hostile environments.

CSAR Organization

The joint search and rescue center is the joint force commander's focal point for PR operations. It is equipped and manned to plan, coordinate, and execute PR operations (including CSAR operations) within the geographical area assigned to the joint force.

The **joint search and rescue center** (JSRC) is a facility operated jointly by personnel from two or more Service or functional components, or it may have a multinational staff of personnel from two or more allied or coalition nations. Component commanders establish **rescue coordination centers** (RCCs) to coordinate all component CSAR activities with the JSRC and other component RCCs. **Component commanders** are responsible for providing forces capable of performing rescue in support of their own operations, and for supporting requests from the JSRC. The joint force air component commander's **joint air operations center** is responsible for putting all combat search and rescue task force (CSARTF) missions into the air tasking order. CSAR force composition and size varies across the range of military operations.

JSRC staffing should include representation from each participating component and should consist of **a JSRC Director, controllers, dedicated intelligence support, and administrative personnel** to provide 24-hour coverage. At least two controllers should be available during ongoing or projected CSAR missions, and be immediately available at all other times. The JSRC requires access to **secure interoperable communications** with specific minimum capabilities. RCCs may be required to transmit secure information to the JSRC and component CSAR aircraft. JSRCs may be fixed sites ashore, deployed on ships, or temporary field sites. As the office of primary responsibility for personnel recovery (PR), the JSRC is responsible for accurate reporting and tracking of the status of each isolated person, including CSAR missions. When these files are no longer needed, the JSRC forwards them to the Joint Services Survival, Evasion, Resistance, and Escape (SERE) Agency (JSSA) for final resolution. The geographic combatant commander should establish a **CSAR coordination capability plan** which provides or identifies the required personnel and equipment to conduct JSRC or RCC operations. The unit requesting rescue support notifies the JSRC through its RCC.

Force Composition and Capabilities

Properly executed CSAR task forces enhance rescue capabilities.

Commanders should task forces to conduct CSAR operations based on air, sea, and ground threat, the number of isolated personnel, and their situation so as to minimize the risk of isolating additional personnel. The CSARTF is normally built

around a helicopter with personnel trained to provide medical assistance and assist the isolated personnel into the helicopter. Multiple assets and forces committed to a specific mission are referred to as a **CSARTF**. A CSARTF may be composed of dedicated and/or nondedicated CSAR forces. **Dedicated CSAR forces** are formally trained in CSAR procedures and have been identified by their component commander to the JFC as primary forces to support joint CSAR operations. **Nondedicated CSAR forces** are those forces which are (a) not formally trained in CSAR procedures, but possess inherent CSAR capabilities; or (b) CSAR trained, but not committed to the JFC as primary CSAR rescue elements. Commanders tasking nondedicated CSAR forces, such as US Marine Corps tactical related applications or special operations forces, should ensure these forces are familiar with CSAR joint tactics, techniques, and procedures and have tailored their forces appropriately.

Stages of a CSAR Operation

CSAR operations are generally divided into five interrelated stages:

A CSAR operation encompasses five tasks: reporting that a person is isolated, determining their location, communicating with and supporting those personnel, recovering them, and returning them to duty or their families. A CSAR mission

awareness and notification,

begins with the RCC or JSRC receiving **notification that an aircrew is missing or a person is isolated from friendly forces**. Notification should be forwarded through the component RCC, or its equivalent, to the JSRC. Include the combatant command and/or subordinate JFC staff in the report chain if the RCC and/or JSRC are not available. The time from incident notification to mission launch will vary, depending on the threat level and other operational requirements.

situation assessment,

Situation Assessment. After notification, the first task of the JSRC is to locate the isolated personnel and determine their situation. Time, effort, and lives can be lost if the isolated personnel's exact location is not accurately verified in a reasonable amount of time. All available assets should be considered to determine and refine the isolated person's location, including national assets and reconnaissance aircraft.

mission planning,

Mission Planning. The combatant command JSRC establishes a PR concept of operations for the theater and to support campaigns or operations. This concept normally includes broad planning guidelines for the allocation of CSAR forces and conduct of CSAR missions. The JSRC is the single focal point for assisting component RCCs in locating,

supporting, and recovering their isolated personnel. The JSRC should assist RCCs with mission planning to accomplish all three tasks with appropriate component, theater, and national assets in an integrated manner in conjunction with ongoing operations. CSAR force selection and mission planning should consider at a minimum the air and ground threat to CSAR forces and the isolated person's situation.

execution, **Execution.** The JSRC should monitor execution of operations to locate, support and recover downed pilots and isolated personnel. The JSRC should gather and fuse mission results with other available information to reduce risk to CSAR forces and to speed recovery of the isolated personnel. Normally a recovery mission will launch after confirmation of the isolated person's identity. Recovery missions typically include providing necessary emergency medical care and delivery of the recovered personnel to an appropriate medical care facility.

and mission conclusion. **Mission Conclusion.** Upon completion of a CSAR operation, the rescue unit and participating forces should complete appropriate post mission reports. The JFC should have established repatriation procedures; the JSSA can assist with establishing these procedures. The JSRC should ensure appropriate agencies establish plans to provide medical and psychological care; operations, intelligence, and SERE debrief; next of kin notification; public affairs assistance; and transportation to the recovered person's unit or their family as appropriate. Further, the JSRC should notify appropriate agencies as incidents occur so they may implement their established plans. Once the case has been closed, the RCC and JSRC should compile all documentation, including a summary of the operation and lessons learned. When the JSRC and JFC no longer need the files, the JSRC should send them to the JSSA for long-term storage.

Search and Recovery Operations

Initial assessment and risk reduction are requirements for CSAR operations. **CSAR operations should not unduly risk isolating additional personnel**, routinely expose scarce or high value assets to extreme risk, or divert critically needed forces from higher priority missions. When the location and/or physical condition of isolated personnel is unknown, the commander

and staff should carefully evaluate tactics and value gained from conducting an airborne search in a potentially hostile area.

Accurate and timely determination of the isolated personnel's position may present major challenges for CSAR forces.

Though the isolated personnel's position may be localized via a radio or visual search, other search modes may be more appropriate. **The four major types of searches are electronic, visual, maritime, and ground.** If extraction is not imminent, recovery units should avoid compromising the isolated personnel's position.

Airborne and surface searches in the objective area can increase the risk to the recovery aircraft, other assets, and isolated personnel. Extended airborne or surface searches should be conducted only if the threat allows the recovery force to maneuver safely in the objective area. **Every effort should be made to minimize highlighting recovery assets.** Normally a dedicated CSAR helicopter is the recovery aircraft. When a dedicated CSAR asset is not available, the JSRC will request recovery assistance from nondedicated CSAR assets or other available assets. CSAR options for recovery include recovery helicopters (single-ship and multi-ship operations), conventional ground forces, special operations forces, fixed-wing aircraft, and naval vessels.

CSAR Task Force Operations

Each participant's role possesses critical aspects during task force operations.

The assembly of two or more assets to support a single CSAR effort is referred to as a **CSARTF**. The primary role of any **airborne mission commander** (AMC) is to serve as an airborne extension of the JSRC or the executing component's RCC. **Rescue combat air patrol** air superiority aircraft will be assigned, if required, to the CSARTF in order to protect the other task force assets and/or isolated personnel from all threats within their capabilities. The **forward air controller, airborne** can provide the CSARTF with significant tactical advantages by locating and authenticating isolated personnel prior to arrival of the CSARTF, and providing current threat assessment near the objective area. An **on-scene commander** is normally designated by the JSRC, executing RCC, or AMC when the tactical situation warrants.

Helicopter Recovery and Rescue Escort

Even the least sophisticated weaponry employed by enemy forces can be lethal to unescorted CSAR recovery vehicles.

Helicopters offer a wide range of capability to JFCs for successful recovery and extraction of isolated personnel and equipment. Since helicopters operate in a low-altitude regime, navigational assistance and suppression of enemy defenses is vital. **Aircraft assigned rescue escort (RESCORT) responsibilities should be fixed- or rotary-wing aircraft** capable of providing the rescue helicopter with communications relay and suppressive fire support. **Armed helicopters** are highly maneuverable, provide a highly accurate suppressive fire capability, and possess good objective area endurance time. Fixed-winged aircraft are usually air refuelable and provide greater range and speed than helicopter escorts. Recovery formations may be escorted by **attack helicopters**. Attack helicopter formations should adjust their speed and altitude, and should use terrain masking to avoid visual or electronic detection. Attack helicopters perform RESCORT operations using a variety of techniques. They may or may not fly in close proximity to the CSAR aircraft. The attack helicopters provide security along the flight route and in the objective area.

During the extraction phase or when the recovery helicopter enters a hover for a mission hold, **RESCORT procedures should be modified to provide maximum suppressive coverage** during this period of vulnerability. Night vision devices (NVDs) significantly increase night mission performance during low-level, terrain-following flight operations. The capabilities and compatibility of other types of NVDs vary widely, but all can enhance night RESCORT operations when properly employed.

CONCLUSION

This publication provides joint tactics, techniques, and procedures for CSAR throughout the range of military operations. Organization and planning information establishes a basis for conducting CSAR operations. The stages of a CSAR operation and CSARTF operations are also covered.

CHAPTER I
COMBAT SEARCH AND RESCUE IN THE JOINT CAMPAIGN

"No matter what era, area, or circumstance, rescue has always been one of the great human interest stories . . . there is no saga quite as inspiring, as exhilarating, or as dramatic as that of man risking serious injury or death itself to help his fellow man in trouble."

L.B. Taylor, Jr.
That Others May Live, 1967

1. Introduction

Combat search and rescue (CSAR) encompasses reporting, locating, identifying, recovering, and returning isolated personnel to the control of friendly forces in the face of actual or potential resistance. CSAR is one of the more complex methods of personnel recovery (PR) because it requires the synchronization of forces and elements that may never have operated together in the face of a hostile threat. The CSAR operations are further complicated by having to operate at significant distances beyond areas controlled by friendly forces. The element of resistance imposes distinct doctrinal, organizational, and tactical constraints on CSAR operations; this makes them different from other forms of combat operations. Whereas most facets of combat operations target specific enemy resources in a land, air, or maritime environment, and are normally proactive in nature, **reaction is intrinsic to CSAR operations**. CSAR missions may occur across the range of military operations. The coordinated efforts of more than one component may be required to successfully recover isolated personnel. **CSAR transcends component functional responsibilities and organizational boundaries,** and requires a common framework to integrate the many types of forces which are capable and may be tasked to participate in or support CSAR operations.

CSAR operations are complicated by having to operate at significant distances beyond areas controlled by friendly forces.

For example, CSAR operations tend to rely heavily on intelligence and reconnaissance assets (typically focused on hostile forces) to determine the location of a friendly person in hostile territory. Therefore, all Service members, whether participating in single-Service or joint operations, must be thoroughly familiar with CSAR operations. Each component should be prepared to support CSAR operations of the other components. **Successful CSAR operations enhance a joint force commander's (JFC's) capabilities** by returning valuable resources to friendly control, by denying adversaries the opportunity to exploit the intelligence and propaganda value of captured personnel, and by maintaining force morale.

2. Scope of Operations

The scope and scale of CSAR operations vary widely. Through the joint search and rescue center (JSRC), the JFC develops a concept to provide PR in support of all Department of Defense (DOD) operations and activities in the operational area. This concept integrates CSAR with the other methods of PR, such as civil search and rescue (SAR), evasion and escape (E&E) activities, and other less specific means to report, locate, support, and recover personnel isolated from friendly forces and then return them either to duty or their family. While CSAR operations typically focus on downed aircrew personnel, **they may be conducted to recover any friendly personnel**. The scale of CSAR operations may require forces ranging from a single asset to complex task forces involving assets from several components.

a. The potential complexity and scale of CSAR operations dictate the need for **theater-level planning and properly organized, trained, and equipped forces** as well as **clear guidance for command and control (C2)**. In peacetime, combatant commanders (or their components) should maintain dedicated staffs to prepare theater CSAR plans and procedures. CSAR staffs and forces will be present in limited numbers in any given theater during peacetime, and **normally require augmentation for war and military operations other than war involving combat**. Dedicated CSAR forces, elements of CSAR-capable forces, and supporting forces should be exercised on a regular basis to promote joint interoperability and to allow for a smooth transition to combat operations.

b. **Commanders at all levels should familiarize themselves with the complexities and details of CSAR doctrine, joint tactics, techniques, and procedures (JTTP), and operations.** Commanders should always weigh the risks and benefits of conducting CSAR operations. The expenditure of scarce assets to recover isolated personnel may not be prudent if additional personnel committed to recover them are likely to become isolated or killed as a result of an operation. **It is essential that commanders prepare their forces for CSAR operations prior to their employment** in hostile or potentially hostile environments. Commanders should ensure that individuals with the potential to become isolated are prepared to assist in their own recovery, and should ensure that forces which may be employed are prepared to conduct CSAR operations.

COMBAT SEARCH AND RESCUE OPERATIONS IN THE PERSIAN GULF WAR

During DESERT STORM there were 38 downed Coalition aircraft and many downed crew members. Several downed crew members ejected over or near heavily fortified Iraqi positions, deep inside Iraq, making rescue attempts impossible due to distances involved and the enemy situation. Seven CSAR missions were launched. There were three successful recoveries; all rescued crew members were Americans. Kuwaiti partisan forces also recovered a downed Kuwaiti pilot. Three of the successful CSAR missions are described below.

The first rescue of a downed air crewmember was a daylight recovery of a Navy pilot deep inside Iraq on 21 January. Airborne warning and control systems controlled the flights of air cover from two A-10s and a pair of Air Force Special Operations Command Pave Low helicopters which flew more than 160 miles into Iraq for the recovery. As the Pave Lows were on final approach for the pick-up, an Iraqi radio intercept truck headed straight for the pilot. The A-10s on station immediately responded by attacking and destroying the van. The aircraft continued to fly overhead, covering the helicopters as they landed. After a successful pickup, the helicopters returned to base, nearly eight hours after the Navy aircraft was shot down.

Another recovery occurred on 23 January. The frigate* USS Nicholas, *(FFG 47) was on station off the Kuwaiti coast. Using the ship's SH-60 helicopter, SEALs aboard the ship recovered a pilot from within two miles of the Kuwaiti coast who had ejected from his stricken aircraft. The CSAR mission took only 35 minutes to complete.

The third rescue occurred on 17 February and involved the night rescue of a USAF pilot 60 miles behind enemy lines. Army special operations forces (SOF) responded with two MH-60s, and while in the process of recovering the crewman, the pilots, who were wearing night vision goggles, evaded an Iraqi surface-to-air missile.

There was a strong demand for SOF aircraft during Operation DESERT STORM. SOF aircraft provide capabilities not normally found in similar types of aircraft. As a result of these sophisticated capabilities, the aircraft were requested to perform innovative missions outside the traditional special operations role. As a consequence, SOF aircraft had one of the higher utilization rates in theater. In the case of CSAR missions, SOF aircraft were preferred because of their radar evasion, communications, and weapons system countermeasures capabilities that were considered important for aircraft survivability.

SOURCE: DOD Final Report to Congress: Conduct of the Persian Gulf War, April 1992

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CHAPTER II
GENERAL ORGANIZATION AND PLANNING

"In times of peace the general staff should plan for all contingencies of war. Its archives should contain the historical details of the past, and all statistical, geographical, topographical, and strategic treatises and papers for the present and future."

LTGEN Antoine-Henri Baron de Jomini, 1838

1. General Characteristics

Normally, component commanders establish a **rescue coordination center (RCC)** to coordinate all component CSAR activities with **the JSRC** and other component RCCs, as appropriate. Joint Pub 3-50.2, "Doctrine for Joint Combat Search and Rescue (CSAR)," describes the C2 arrangements for component RCCs and contains typical command relationship diagrams. **CSAR force composition and size varies** across the range of military operations. The information in this chapter establishes a basis for planning and conducting CSAR operations.

2. Joint Search and Rescue Center

The JSRC is the JFC's focal point for integrating PR plans and operations in support of the campaign or operation. As one of the more complex and time-critical means of PR, CSAR is of prime concern to the JSRC. Additionally the JSRC is a primary civil SAR facility, suitably staffed by supervisory personnel and equipped for planning, coordinating, and executing joint SAR and CSAR operations within the geographical area assigned to the joint force. **The facility is operated jointly** by personnel from two or more Service or functional components. It may have a multinational staff of personnel from two or more allied or coalition nations (multinational SAR center). **The JSRC should be staffed equitably** by trained personnel drawn from each joint force component, including US Coast Guard participation where practical. **During peacetime, standing JSRCs normally assist in developing integrated PR concepts** to support operation plans (OPLANs), operation plans in concept format, and peacetime operations. Concepts should describe responsibilities and procedures for responding to all types of PR incidents. The concept should integrate use of host nation SAR, DOD CSAR, tactical recovery of aircraft and personnel (TRAP), and special operations forces (SOF) capabilities, and diplomatic activities to report, locate, support and/or communicate with, recover, and return isolated friendly personnel to duty or their families. **Standing JSRCs also coordinate training and exercises** to provide a trained joint staff element for combat operations that is capable and ready to plan, coordinate, and execute joint CSAR missions tasked by the JFC. Detailed evasion and recovery (E&R) operations are contained in Joint Pub 3-50.3, "Joint Doctrine for Evasion and Recovery."

a. In those joint operations with significant involvement by joint force components and their staffs, **the JFC normally establishes the JSRC by tasking one of the component commanders to designate their component RCC to also function as the JSRC**. The designated component should possess the necessary forces and capabilities, such as command, control, communications, computers, and intelligence (C4I) as well as surveillance to plan and execute PR operations (to include joint CSAR operations) expeditiously. The JFC should delegate the

necessary authority and responsibility to the designated component commander for operating the JSRC to provide joint CSAR capability for the joint force. **The designated component commander designates the JSRC Director**, who has overall responsibility for the operation of the JSRC.

Note: The commander of a combatant command's (CINC's) standing JSRC can assist, support, augment, or become the JFC's JSRC. Normally, the Service component which provides the joint force air component commander (JFACC) is responsible for providing the JSRC.

b. If a joint operation is limited in nature and there is no significant involvement by joint force component forces or their staffs, **the JFC may establish a JSRC (or its functional equivalent) as part of the JFC's staff**. In this case, the JFC normally designates a JSRC Director as the JFC's representative with overall responsibility for JSRC operations.

c. JSRC responsibilities during peacetime and during combat operations are shown in Figures II-1 and II-2.

3. CSAR Plan Development

a. **PR Concept.** The JSRC develops a PR concept to support operations in a geographic area. The concept integrates the various methods of PR so as to identify for planners and individuals developing evasion plans of action the primary method for each area and the applicable time frames. The concept should address how each of the five PR tasks (reporting, locating, supporting, recovery, and returning isolated personnel to friendly control) should be accomplished. It should delineate when and where SAR, CSAR, E&E, E&R, and captivity support and recovery will be primary and who has responsibility for repatriation, next-of-kin notification, and public affairs issues. The JSRC should develop this overall concept before writing the CSAR appendix to Annex C of CINC OPLANs.

b. **CSAR operations are planned as an appendix to Annex C of CINC OPLANs.** The format for preparing the appendix is contained in CJCSM 3122.03, "Joint Operation Planning and Execution System Vol II: (Planning Formats and Guidance)," and CJCSM 3122.04, "Joint Operation Planning and Execution System Vol II: (Supplemental Planning and Execution Formats and Guidance)." The JSRC will ensure proper distribution of the CSAR appendix to CINC plans and relevant supporting plans to all required agencies.

c. **The OPLAN or CSAR Appendix should describe** how and where CSAR operations fit into the PR concept. This description should contain enough information for components to provide guidance to personnel at risk about how long they should expect to wait for recovery, which method of PR is primary, and how isolated personnel can assist in their recovery. The CSAR appendix should include notification and tasking procedures (who, what, where, and when), operational areas, methods of employment, and coordination and tactical procedures that are not platform-specific. Dedicated and nondedicated CSAR-capable assets should be available through prearranged procedures and be included in the OPLAN. The types of missions for which units are (or may be) tasked should also be clearly outlined. Rules of engagement (ROE) as they apply to the operation of CSAR units must be considered when writing the CSAR plan or appendix. These should include responsibilities of isolated personnel, authentication, and isolated personnel report (ISOPREP) DD1833 procedures, as well as recovery and medical facilities.

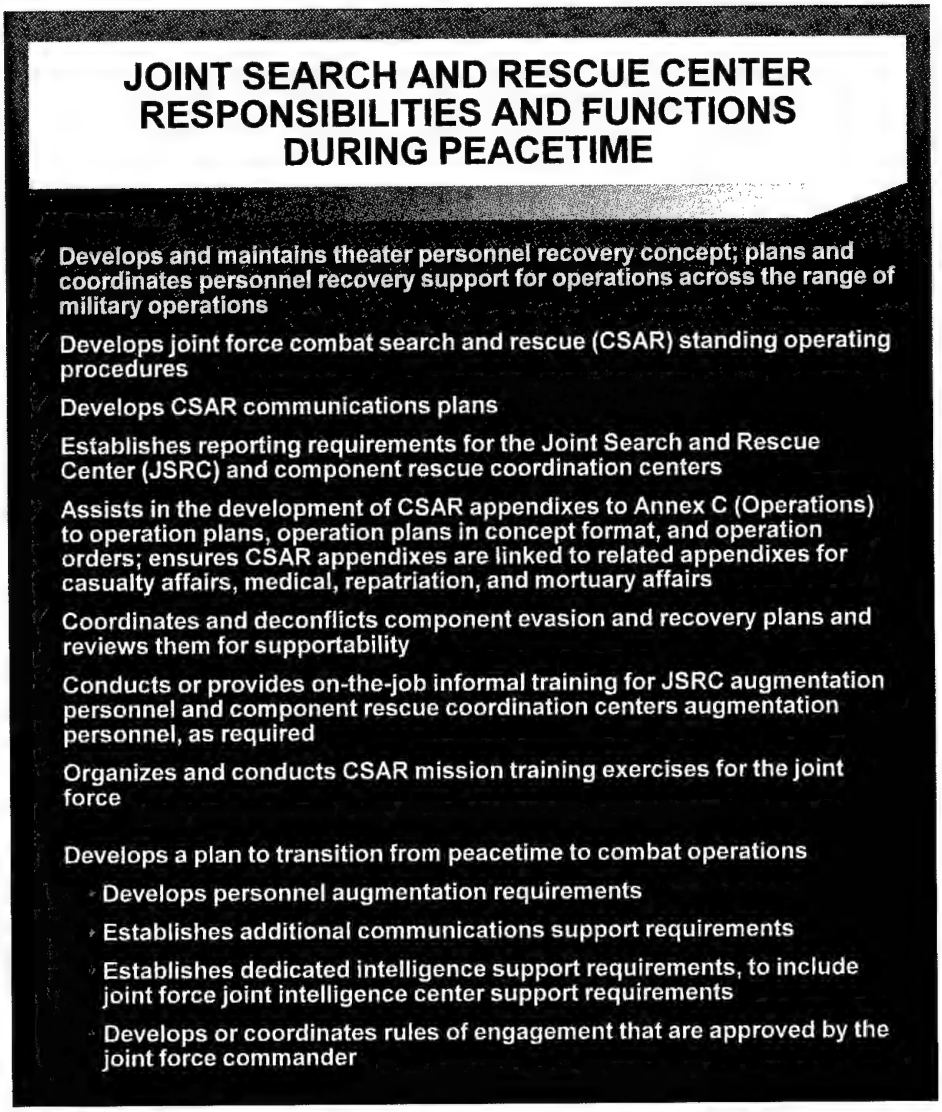


Figure II-1. Joint Search and Rescue Center Responsibilities and Functions During Peacetime

4. Component Commander Responsibilities

Component commanders are responsible for providing forces capable of performing PR in support of their own operations and for supporting requests from the JSRC. **To maximize the probability of success, component commanders will complete the following.**

a. **In accordance with JFC direction, attempt to fulfill taskings from the JSRC Director** to support another component within capabilities and consistent with priorities and requirements of other assigned tasks. (The JFC will determine command relationships within the joint force.)

b. Ensure all **potential isolated personnel** are familiar with CSAR tactics,

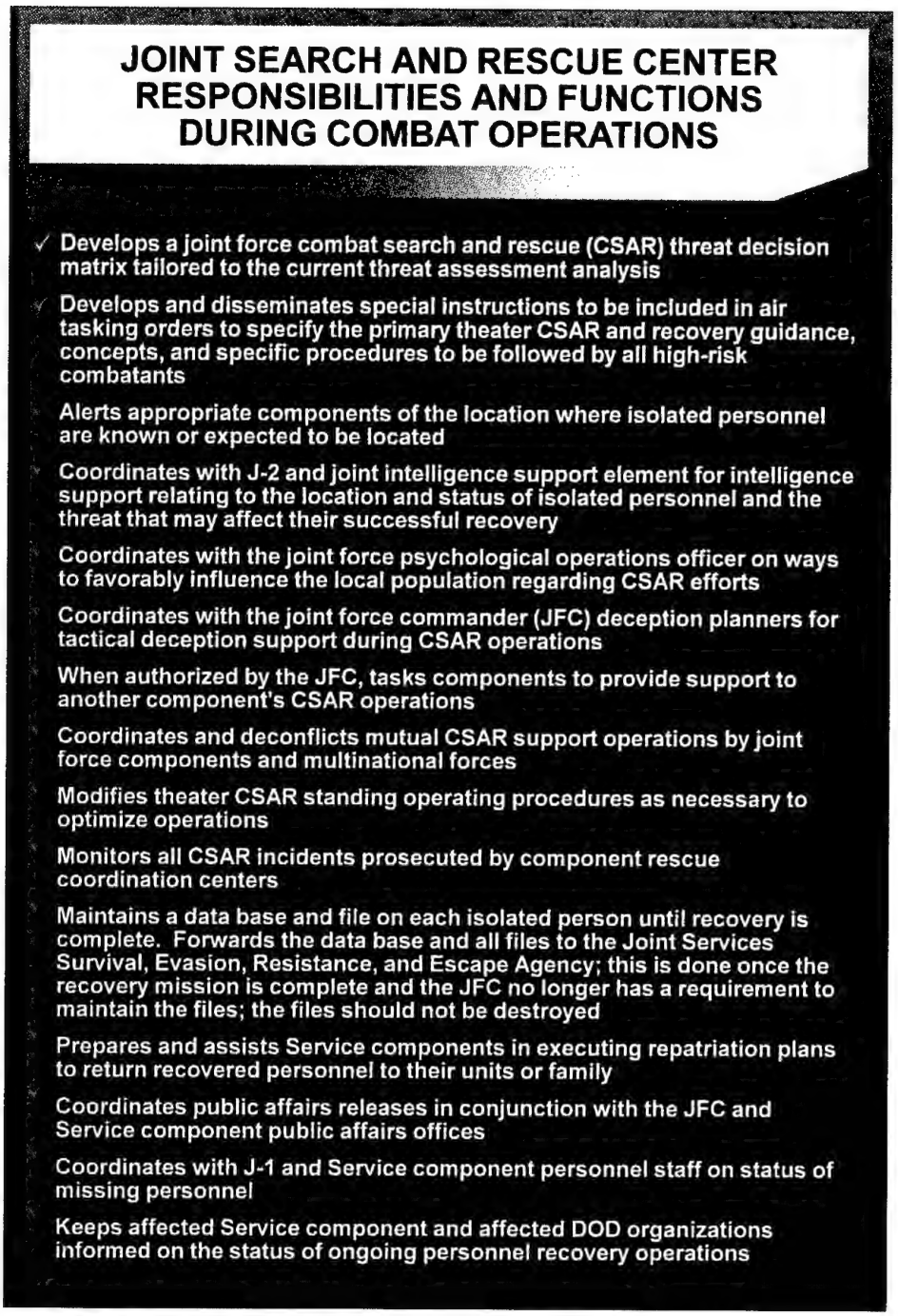


Figure II-2. Joint Search and Rescue Center Responsibilities and Functions During Combat Operations

techniques, and theater-specific survival procedures employed by other joint force components.

c. Ensure **intelligence data** to support E&R planning and training are sent in a timely manner to subordinate units.

d. Ensure **component, joint force, and theater CSAR tactics and planning data** are available to subordinate commands.

e. Assist in **preparing OPLANs and CSAR appendixes** for their forces that support the JFC CSAR efforts.

f. Provide **component controllers** to the JSRC, as directed.

g. Designate **RCCs** or equivalent operations centers and controllers to coordinate CSAR operations.

h. Provide **surveillance and C2 warfare** support as required.

5. Rescue Coordination Centers

To facilitate the coordination of rescue operations, component RCC controllers should:

a. Establish **communications** with other RCCs and develop **procedures** to ensure the timely flow and protection of CSAR-related information.

b. Compile and maintain **current listings of selected areas for evasion (SAFEs)** and pickup points where rescue forces can best effect recovery.

c. Establish **points-of-contact and filing locations** of evasion plan of action (EPA) and ISOPREP within subordinate commands for use in CSAR operations.

d. Retain **case files** until no longer needed. At that time, forward them to the JSRC for safekeeping or forward to the Joint Services Survival, Evasion, and Escape Agency (JSSA) for final disposition.

e. Establish a liaison with the **component medical treatment facility**.

f. Establish liaison **with the joint force staff legal officer** for ROE issues.

g. Establish component-specific CSAR **standing operating procedures**, as required.

Component commanders are responsible for providing forces capable of performing personnel recovery in support of their own operations.

6. The Joint Air Operations Center

The JFACC's operations staff will normally establish the joint air operations center (JAOC) (when a JFACC is designated). The JAOC is responsible for publishing CSAR rotary-wing recovery and fixed-wing support missions in the air tasking order (ATO). Each component liaison team should have sufficient expertise to assist the JAOC with CSAR support options. **The JAOC is normally divided into two divisions:**

a. **Combat Plans.** CSAR planners should consider the items listed in Figure II-3.

b. **Combat Operations.** This is the current operations command center for the JAOC with component representation to monitor and change ongoing missions. Each component liaison team should have sufficient rescue expertise to assist the JAOC with CSAR options. Normally, the JSRC is assigned under the Combat Operations Director in the JAOC.

7. Staffing and Experience Level Requirements

a. **JSRC Composition.** JSRC staffing should include representation from each participating component and should consist of **a JSRC Director, controllers, dedicated intelligence support, and administrative personnel** to provide 24-hour coverage. At least two controllers should be available during ongoing or projected CSAR missions, and be immediately available at all other times. The joint intelligence support element (JISE) will normally be the 24-hour center for intelligence support for the joint task force, and should provide required support to the JSRC (through liaison if required). Intelligence support to the theater-level JSRC will be supplied by the combatant command joint intelligence center. Chapter VI of Joint

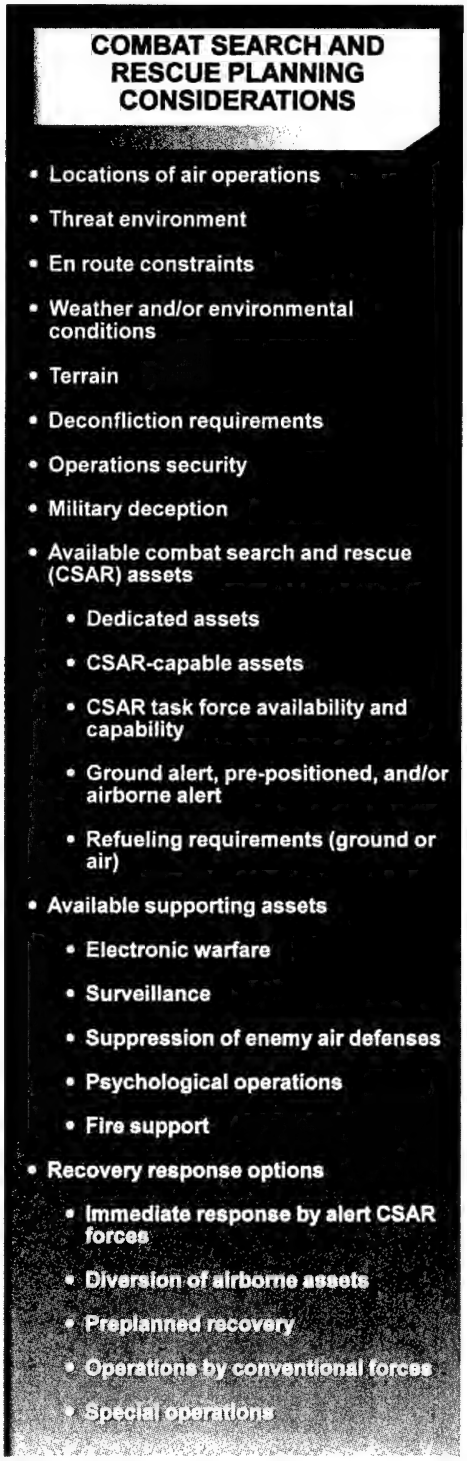


Figure II-3. Combat Search and Rescue Planning Considerations

Pub 3-50.2, "Doctrine for Joint Combat Search and Rescue (CSAR)," provides proposed JSRC staffing procedures.

b. **Experience Levels**

- The **JSRC Director** must be familiar with joint CSAR procedures and have a Top Secret and/or Sensitive Compartmented Information security clearance.

- **Commissioned or warrant officer controllers** command missions; therefore, they should be CSAR experienced and preferably graduates of the National SAR School's CSAR Course or an equivalent.

- **Enlisted controllers** should be noncommissioned officers or petty officers with either experience in CSAR procedures or graduates of the National SAR School's CSAR course or an equivalent.

8. Communications Capabilities

The JSRC requires access to secure interoperable communications. Facilities with these capabilities include those listed in Figure II-4. **Minimum capabilities should include:**

a. **JSRC Communications**

- Secure CSAR frequency and data burst authorization and access for high frequency (HF), very high frequency (VHF), and ultra high frequency (UHF) line of sight (LOS) and satellite communications (SATCOM). Frequency clearance should be obtained for single sideband, amplitude modulation (AM), and frequency modulation (FM) modes.

- Secure telephones, telephones (Defense Switched Network [DSN], commercial, and patch capability) and facsimile (FAX) and field phones (as needed).

- Mobile search and rescue satellite aided tracking (SARSAT) local user terminal (as required).

b. **RCC Communications**

- Secure CSAR frequency and data burst authorization and access for HF, VHF, and UHF LOS and SATCOM. Frequency clearance should be obtained for single sideband, AM, and FM modes.

- Secure telephones, telephones (DSN, commercial, and patch capability) and FAX and field phones (as needed).

- SARSAT local user terminal (as required).

9. Physical Requirements

JSRCs may be fixed sites ashore, deployed on ships, or temporary field sites. **The JSRC should be prepared to function where both space and staffing are limited**. Space availability on ships or at austere field locations may vary. A JSRC search and rescue kit should include theater-specific publications, maps, charts, message formats, incident forms, events logs, mission folders, administrative supplies, and classified storage. Chapter VI of Joint Pub 3-50.2, "Doctrine for Joint Combat Search and Rescue (CSAR)," contains further guidance, to include a proposed JSRC layout.

10. Documentation Requirements

Accurate reporting and tracking of each CSAR incident and mission is essential. The following documentation should be completed by the JSRC and maintained on file until no longer needed. When the files are no longer needed, they should be

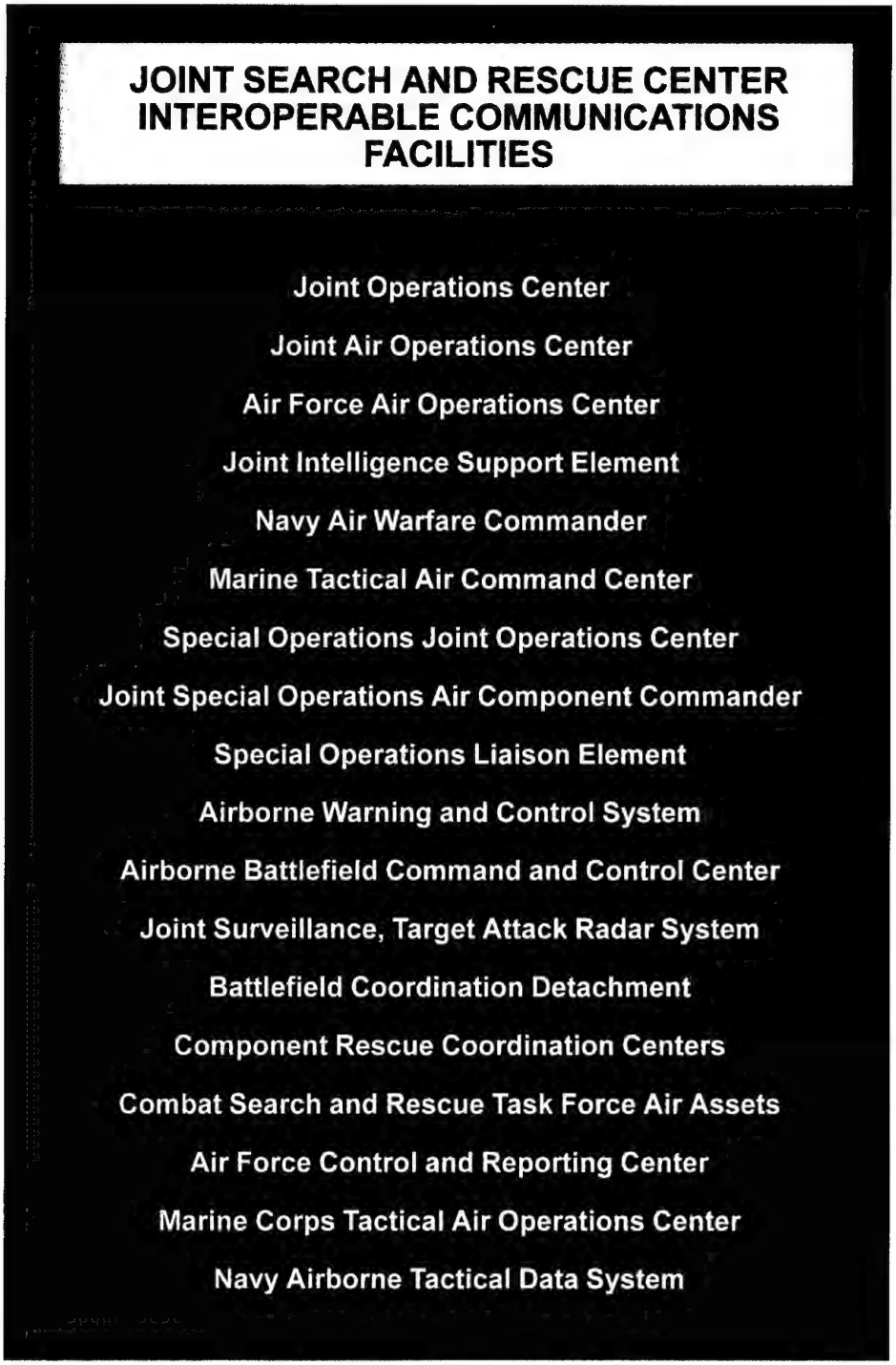


Figure II-4. Joint Search and Rescue Center Interoperable Communications Facilities

forwarded to the theater JSRC, who in turn forwards them to JSSA for final disposition. Incident logs, mission folders, or case files should not be destroyed.

a. The **emergency locator transmitter (ELT)** and **emergency position indicating radio beacon (EPIRB) worksheet** documents all ELT and/or EPIRB incidents received by the JSRC.

b. The **aircraft incident log** documents awareness and response to aviation CSAR incidents.

c. The **nonaircraft incident log** records receipt and response to all nonaircraft, non-ELT incidents.

d. The **controller's log** maintains a chronological record of all incidents and daily activity.

e. **Mission folders** are prepared each time an incident receives mission status. A CSAR incident transitions to mission status when the available information reasonably validates the need for a CSAR effort. **Mission folders should include:**

- Enough **detailed information about CSAR special instructions (SPINS), evasion plans, and specific information briefed to the isolated personnel** before their departure. This type of information becomes more important the longer a person is isolated and becomes increasingly more difficult to gather as time progresses.
- **A numbering system** for tracking purposes for use by the mission.
- Participating CSAR units or assets.
- Date mission opened, suspended, or closed.
- Mission results.
- Categorization of the mission. This should never be a unilateral decision by the JSRC or RCC; it should be made jointly by intelligence personnel through joint intelligence preparation of the battlespace (JIPB), weapon systems subject matter experts, and component representatives. Once categorized, **folders and mission support data should be continually evaluated and recategorized** to take advantage of changing tactical situations and should optimize any CSAR or PR response. **Planners should use the following categories as a guide for classifying potential responses:**

•• **Immediate. Immediate missions are generally conducted in permissive- to low-threat environments** (defined in Chapter III of this publication, "Stages of a CSAR Operation," paragraph 4b) and they usually permit prosecution from an alert status using immediately available assets. **Such missions require minimal additional planning or coordination.** These missions could be prosecuted in medium threat environments when coordination is minimal, the isolated personnel's location and status can be verified, and adequate threat degradation capabilities are readily available. Immediate missions require real-time intelligence and timely coordination by the SAR duty officer. This individual coordinates with the appropriate duty officers, such as the fighter intercept duty officer, defensive duty officer, Navy duty officer, special operations liaison element, or other personnel. This coordination process is done to obtain, schedule, or divert airborne assets for rescue vehicle support, rescue combat air patrol (RESCAP), rescue escort (RESCORT), suppression

of enemy air defenses (SEAD), air refueling support, and other required support.

•• **Preplanned. Preplanned missions, generally conducted in medium- or higher-threat environments** (defined in Chapter III of this publication, "Stages of a CSAR Operation," paragraph 4b) **require detailed and deliberate planning and real-time intelligence information**. These missions may preclude the immediate commitment of assets due to a lack of accurate threat information, the inability of available forces to counter known threats, requirements to prosecute the mission under the cover of darkness, or other considerations. They will be scheduled and added to either the current day's ATO or future ATOs, as appropriate.

•• **Hold. Hold-missions typically contain major elements of uncertainty,** to include the inability to confirm the location, availability, and status of the isolated personnel or questionable threat data. Missions may also be placed in "hold" status by appropriate CINCs due to overriding political concerns or to preclude compromise of national objectives. Every incident placed in this category should remain open and be continuously reviewed until the isolated personnel have been declared dead by the appropriate authorities or successfully recovered.

•• **Closed. The mission is closed either due to confirmed death** (not just wingman report of "no chute seen") or successful recovery of the isolated personnel. Cases should be put in "Hold" when PR methods other than CSAR, such as an unconventional recovery mission or diplomatic initiatives, may result in locating them, determining their fate, supporting them during captivity, and recovering them. Once the JFC has exhausted all means of PR and the case is still open, the JSRC should formally transfer the case to the DOD prisoner of war and/or missing in action (Missing Persons) Office for final resolution.

f. **Messages.** Most message formats can be found in **US message text format (USMTF) publications**. CSAR plans should specify the message formats to be used by the JFC and supporting units. The JSRC should ensure these reports go beyond the dedicated CSAR elements. These messages provide critical information needed by nondedicated CSAR organizations at all levels to assist the JSRC in planning and executing a successful CSAR operation and may be sent in the following formats:

- **SAR Incident Report**, voice or message format.
- **SAR Situation Report**, voice or message format.
- **SAR Request**, voice or message format.
- **SEARCHPLAN.**

11. Logistics Planning

The geographic combatant commander should establish a **CSAR coordination capability plan** that provides or identifies the required personnel and equipment to conduct JSRC or RCC operations.

a. **JSRC.** OPLANs should provide sourcing and time-phased force and deployment data for JSRC personnel and equipment.

b. **Component RCCs.** Establish a unit type code for personnel and equipment.

12. Coordination Procedures

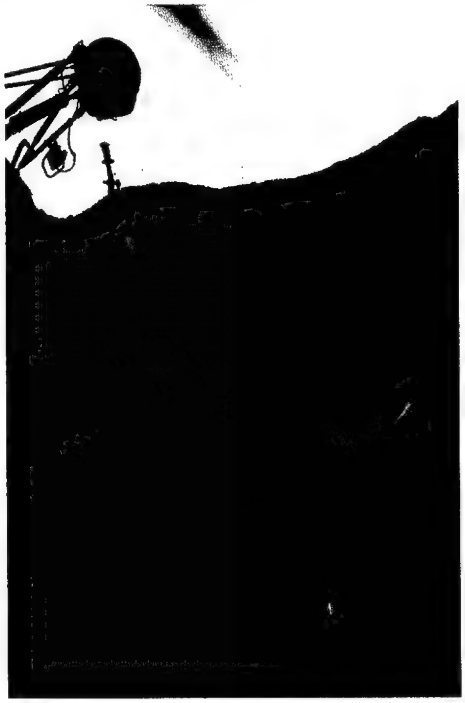
The unit requesting rescue support notifies the JSRC through its RCC.

a. **The JSRC**

- Coordinates with the information operations cell for information and information system protection and defense support and for targeting of adversary information and information systems.
- Receives report from the air operations center, airborne warning and control system (AWACS), joint tactical air reconnaissance and/or surveillance mission report, or RCC that personnel have been isolated in hostile territory. The JSRC then assesses the situation and publishes a SAR incident report to quickly disseminate critical elements of information.
- When authorized by the JFC, **tasks components** to provide support to another component's CSAR operations.
- Coordinates with the affected component RCC, JAOC, JISE and national intelligence support team to determine or refine the isolated personnel's location, status, and intentions.
- **Coordinates with component rescue controllers** for a deliberate, planned rescue task force.
- **Coordinates with functional and Service components** for use of nondedicated rescue resources.
- **Coordinates with theater intelligence**, components, and appropriate agencies to alert E&E mechanisms to assist isolated personnel.
- **Determines if current operations will result in temporary air superiority** in the vicinity of isolated personnel.
- **Alerts all forces** operating in the area of the incident to watch for isolated personnel.

b. **The JSRC and RCCs coordinate assignment of the SAR mission coordinator** and provide the mission coordinator all available data. The SAR mission coordinator is the designated person or organization selected to direct and coordinate support for a specific SAR mission.

c. The **SAR mission coordinator** confirms the distress call and the isolated person's authentication data (or data from all affected isolated personnel, if several individuals are to be rescued during the same mission). The coordinator then recommends



The employment concept and forces necessary for a SAR mission are recommended by the mission coordinator.

the mission employment concept and forces necessary to conduct the mission.

d. The **isolated person's unit** confirms the distress call.

e. **Rescue forces** conduct the mission.

f. **The JSRC coordinates the return** of the rescued personnel back to their unit. This includes the following:

- Debriefing by intelligence personnel, the JSRC for SERE information, and the unit for operational information.
- Medical assistance, consisting of both psychological and physical exams along with any required treatment.
- Transportation to medical, public affairs and/or protocol locations, and back to their unit.
- Public affairs assistance.
- Personal affairs assistance from the servicing personnel element.

13. CSAR Force Composition and Capabilities

CSAR response forces may range in complexity from additional recovery aircraft and enhanced command, control, communications, and computers (C4) capabilities to multi-Service and/or component assets or forces with virtually no familiarity with the other components' operating procedures and techniques. **Multiple assets and forces committed to a single CSAR operation are referred to as a combat search and rescue task force (CSARTF).** Interoperability of dissimilar joint force assets and composite flight maneuvering considerations are essential to economy of effort, safe, coordinated responses, and successful recoveries. **Properly executed, CSARTFs enhance rescue capabilities** by performing the activities shown in Figure II-5. **The JSRC normally coordinates with appropriate components to obtain one or more of the following elements:** airborne mission commander (AMC); RESCORT; RESCAP; forward air controller, airborne (FAC[A]); and assets capable of lethal and nonlethal (electronic attack) SEAD. These assets may be either dedicated or nondedicated. Their primary associated tasks are further detailed in Chapter IV, "Search and Recovery Operations," and Chapter V, "Task Force Operations," of this publication.

a. **Dedicated CSAR Forces.** These forces are formally trained in CSAR procedures and have been identified by their component commander to the JFC as primary forces to support joint CSAR operations.

b. **Nondedicated CSAR Forces.** These are forces not committed to the JFC as primary CSAR rescue elements. A CSARTF may be composed partially or entirely of these forces.

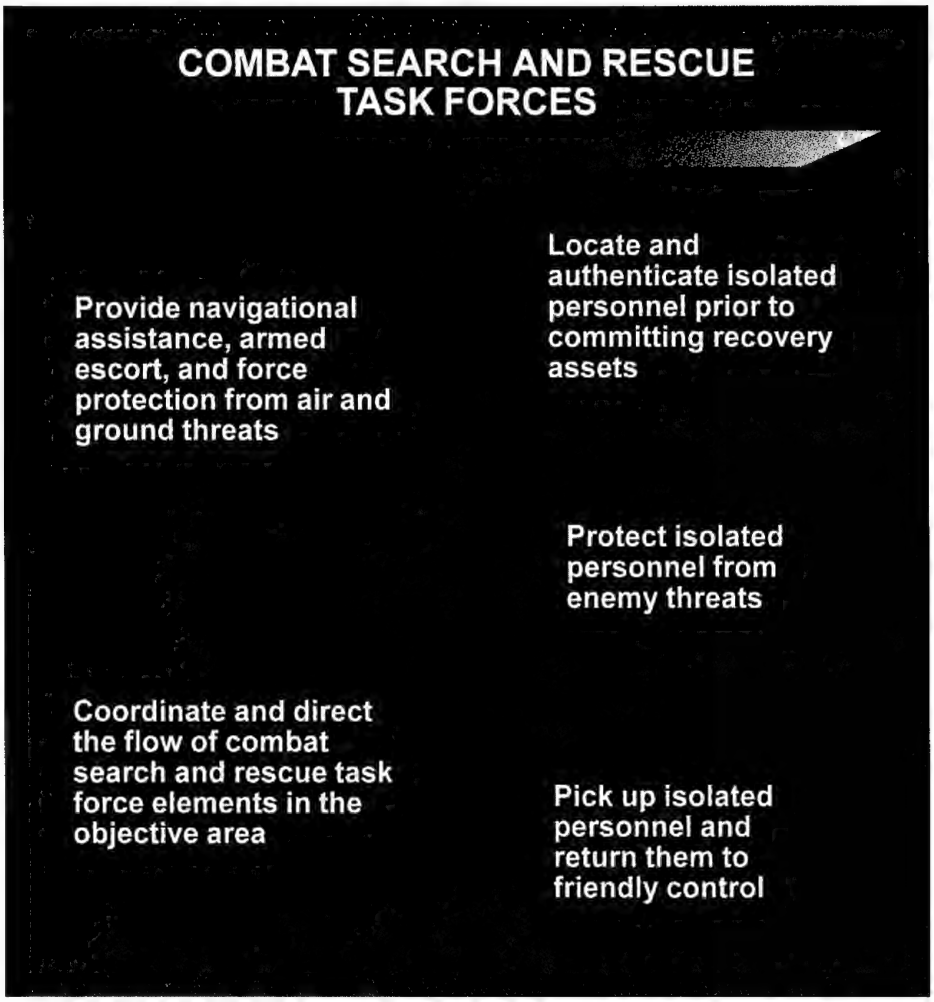


Figure II-5. Combat Search and Rescue Task Forces

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CHAPTER III
STAGES OF A CSAR OPERATION

"Basher 52 reads you loud and clear..."

Radio transmission received by Basher 11 (Capt. T.O. Hanford) over Bosnia, initiating the successful rescue and recovery of Capt. Scott O'Grady, 1995

1. Introduction

CSAR operations are generally divided into five interrelated stages, as shown in Figure III-1. Rescue forces may be notified of a CSAR requirement through any portion of the joint or component force C2 structure. CSAR forces will not normally launch until they have determined a positive location and verified a CSAR situation. Recovery is not normally initiated until the isolated person has been authenticated.

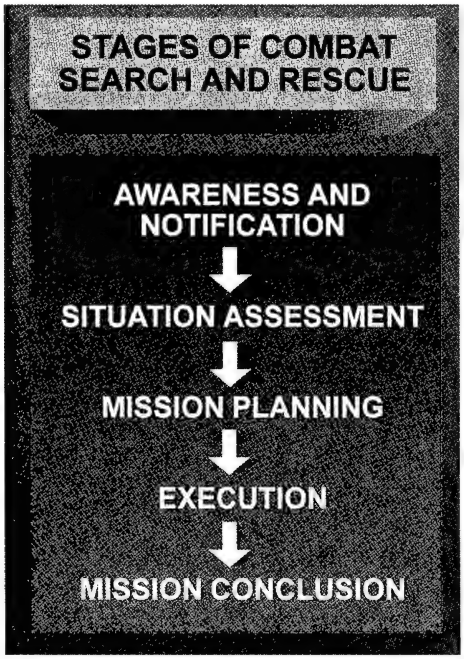


Figure III-1. Stages of Combat Search and Rescue

2. Awareness and Notification

a. **Distress Notification.** Notification of a downed aircraft or isolated person begins the rescue process. **Notification shall be forwarded through the component RCC or its equivalent to the JSRC.** If recovery efforts require forces from components other than the isolated personnel's, the JSRC or RCC will coordinate the appropriate CSAR force and assets to respond to the situation. The time from incident notification to mission launch will vary, depending on the threat level and other operational requirements. All aircraft should monitor emergency frequencies and acknowledge or record personnel distress transmissions, if possible.

b. **Notification Methods and Procedures. Isolated personnel should attempt to establish radio contact** with a wingman, escort aircraft, AWACS, joint surveillance, target attack radar system, airborne battlefield command and control center (ABCCC), or any friendly force(s) in the area. Transmissions should be brief to avoid detection or localization by hostile forces.

- **In Flight.** When pilots or aircrews detect significant aircraft problems, or when bailout, ejection, crash landing, or ditching appears imminent, **aircrews should** (conditions permitting):

  •• **Attempt to establish radio contact** by calling "MAYDAY MAYDAY, MAYDAY" on the frequency of last contact, an established common

frequency, or the international emergency frequencies. When communication is established, transmit the following information: tactical call sign, type aircraft, position, course, speed, altitude, nature of difficulties, and intentions. In a nonpermissive environment, give aircraft position in such a way as to reduce the likelihood the enemy will ascertain the stricken aircraft's location (for example, give position from BULLSEYE point, or from mission's target as designated in the ATO). In a permissive environment, maintain the transmission long enough to permit a direction finding (DF) plot of the aircraft position. If communications have not been established or are uncertain, broadcast the above information in the blind.

•• **Momentarily set identification friend or foe (IFF) to emergency position** (use of transponder and time length depend on enemy's probability of detection).

- **On-Ground Procedures.** Ground personnel should be prepared to request extraction through **normal communications channels** or directly through airborne command and control platforms. Also, ground personnel should be prepared to provide authentication information.

- **Communications Relay. Any friendly force receiving information about distressed aircraft or isolated personnel should forward the details** (by secure means if possible) to the nearest monitoring agency (ABCCC, AWACS, E-2C, or JSRC). Extreme care should be taken to ensure the isolated person's situation is not compromised and that relay transmissions do not interfere with distress calls. If a bailout, crash, or ditching is observed by another aircrew or by ground personnel, the information listed in Figure III-2 (if known) should be provided to the JSRC.

- **An aircrew observing a bailout, crash, or ditching should:**

  •• Remain in the area as conditions permit or until relieved by other aircraft. Do not circle directly over the survivor.

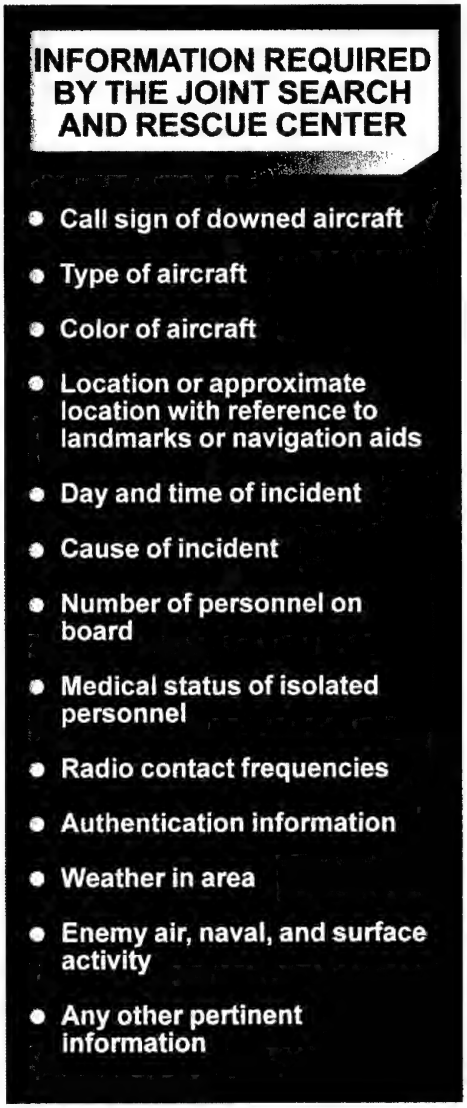


Figure III-2. Information Required by the Joint Search and Rescue Center

This may serve to mark the survivor's position for hostile forces.

•• Keep the parachute(s) in sight.

•• Note the approximate ejection site and winds at altitude so that CSAR planners can compute the isolated personnel's probable landing position.

•• Consider switching IFF to EMERGENCY and transmitting "MAYDAY" on GUARD frequency. This technique should be carefully weighed against the probability of enemy detection.

•• Provide communications relay and defensive cover if possible.

•• Assume role of the on-scene commander (OSC), as threat and mission allows, until relieved by an OSC of the arriving CSARTF.

•• Provide necessary updates to include possible isolated personnel injuries, disposition and movement of hostile forces, terrain factors, and possible recovery sites.

3. Situation Assessment

Situation assessment consists of analyzing all available information to refine the isolated personnel's location and their status. Upon confirmation of an isolated person, the JSRC should immediately send out the incident report with the Central Intelligence Agency and National Reconnaissance Office addresses included so national systems may begin working immediately to help refine the location of the isolated persons. The JSRC should develop courses of action and use all available assets to refine the location of the downed aircrew or isolated personnel and determine their status. The JSRC should be prepared to launch the recovery effort as soon as possible after determining location and status. The objective area is designated as a predetermined radius (usually 5-10 minutes helicopter flying time) surrounding the isolated personnel's expected location. Assets the JSRC should consider tasking to refine the isolated person's location include: wingman, AWACS, E-2C, ABCCC, Rivet Joint, joint surveillance, target attack radar system (JSTARS), COMPASS CALL, or ground control intercept (GCI), DF, FAC(A)s, intelligence, or electronic and visual search. This assumes an electronically permissive environment. Denial by the enemy of the communications environment will hamper location efforts. When conducting an electronic search, the AMC should use discretion in exposing the AMC aircraft to the hostile environment. **Search areas should be established by the AMC.** Standoff electronic support aircraft should be used for electronic search, if possible. Faster moving DF capable aircraft should be used for electronic search only if the enemy's DF capabilities will not contribute to the capture of the isolated person. AMC must be proactive and aggressive in taking control of the situation. The AMC is responsible for keeping the OSC and/or CSARTF and RCC informed of all pertinent information such as threats, aborts, fades, and electronic warfare (EW) information (See Appendix A of this publication, "Airborne Mission Commander CSAR Checklist"). AMC capable aircraft must be prepared to assume the duties of the AMC in a combat environment.

a. **Rescue Location and/or Coverage.** Speed is essential to the successful rescue of personnel lost in a threat environment. **The AMC aircraft should be positioned on airborne alert as close to hostile areas as possible.** Airborne orbit locations should be specified in fragmentary orders or SPINS. The AMC should have the prerogative to move the orbit location in response to operational situations. Visual coverage of the rescue scene is not required for AMC

operations as long as visual coverage is maintained by the OSC.

b. **Altitude Deconfliction. The AMC mission is normally conducted at high altitude, but threat considerations dictate actual altitudes.** The AMC mission requires radio LOS with the OSC and HF or SATCOM communications with the JSRC. It is possible that these conditions may be met at high altitude while the AMC remains outside the threat area.

c. **Isolated Personnel Considerations. Specific information about isolated personnel is required** to facilitate effective CSAR search planning and to properly prepare CSAR forces for executing SAR missions. In addition to adequate charts and available photos or imagery of the objective area, the isolated personnel's last known location, physical condition, direction of travel, and proximity to population centers, threats, or SAFEs should be determined. The isolated personnel's EPA and ISOPREP should be readily available to the JSRC or RCC.

d. **Isolated Personnel Movement. The last known direction of travel should be superimposed on a chart of the objective area** to provide the search force with an isolated personnel movement direction. Natural boundaries and features such as hills, foliage, streams, or lakes may enhance or restrict isolated personnel movement. **EPA information** can provide the isolated personnel's proposed route of travel, expected concealment, and logical actions upon entering a survival situation. Joint Pub 3-50.3, "Joint Doctrine for Evasion and Recovery," contains additional information on isolated personnel actions and responsibilities.

e. **National Assets. Many situations may require external resources** (i.e., satellite imaging or other national-level asset) to successfully conduct the mission.

4. Mission Planning

In conjunction with component RCCs, the JSRC establishes broad CSAR planning guidelines. In general, those selecting the appropriate forces, both type and composition, need to consider the following: an overall situation assessment; a review of employment options which may satisfy mission requirements; and the tactics, training, capabilities, and limitations of available CSAR or supporting forces. When the isolated person's location is known, planning should focus on avoiding or degrading anticipated en route and objective area threats. **Determining the employment tactics and force options involve many critical factors.**

a. **Component Go and/or No-Go Criteria. Each component should develop a CSAR Go and/or No-Go criteria matrix.** Joint CSAR planners should understand the interrelationships of various component decision matrices. These matrices provide commanders with a framework for making informed Go and/or No-Go or abort decisions. Component CSAR Go and/or No-Go criteria shall be forwarded to the JSRC.

b. **Threat Conditions for CSAR Planning**

- The JSRC and forces participating in CSARTF operations should **carefully analyze the threat to aircraft and the threat to ground forces.** These are two different types of threats which drive different force requirements.

- **JIPB analysis will define the threat.** The threat environment is divided into three general intensity levels: low, medium, and high (See Figure III-3).

  •• **Low Threat.** This operating environment **contains highly dispersed, thinly concentrated enemy forces and assets**. Their ability to reconstitute is

Figure III-3. Air and Ground Threat Environment Intensity Levels

limited. Weapon systems typically include small arms, light optically-aimed antiaircraft artillery (AAA), up to 0.50 caliber and/or 14.5mm equivalent weaponry, and man-portable infrared (IR) surface-to-air missiles (SAMs). Tactics and techniques employed by friendly forces do not normally require extraordinary planning measures prior to launch, and the environment permits operations using passive countermeasures taken to avoid detection and engagement by enemy forces.

•• **Medium Threat.** This operating environment contains **significant threats**; the concentration and types of enemy weapons employed normally require both **passive and active measures to avoid or degrade the** threats and prevent subsequent engagement. Weapons systems typically include low-threat systems, early generation SAMs, warning systems, and aircraft without look-down and/or shoot-down capability. CSAR forces should expect to conduct extensive planning and employ threat avoidance tactics and evasive techniques, onboard countermeasure and defensive suppression systems, or external threat suppression or force protection aircraft (RESCAP, RESCORT, and electronic attack) to preclude lethal engagement. Limited radar or electro-optical acquisition and engagement capability at medium ranges may exist, but air defense systems are not fully integrated.

•• **High Threat.** The operating environment presents **hostile forces over a wide area of coverage, densely concentrated, and capable of rapid reconstitution and mobility**. Enemy weaponry includes advanced or late generation SAMs, modern ground-based

radars, early warning systems, electronic counter-countermeasures, integrated AAA, and aircraft with look-down and/or shoot-down capabilities. High threat environments are characterized by fully-integrated air defense systems and C2 networks, as well as EW capabilities. Use of a conventional CSARTF for high-threat operations requires extensive and detailed planning, and large force protection packages are necessary to conduct these operations. Because of this large force requirement, the JSRC should also pursue other PR means in high-threat environments.

- **Visual searches using manned aircraft conducting search patterns are not recommended in other than low-threat environments.** However, reconnaissance flights are an alternative when the isolated person's location has been somewhat refined. The JSRC should be prepared to coordinate with the JAOC for reconnaissance flights over high-threat areas. Threat levels, isolated personnel training, and equipment capabilities dictate whether operations should be conducted during the day or night. Searches conducted in other than low-threat areas require threat neutralization by suppression or passive means.

c. **Current Operations.** Current operations may be capable of diverting enemy activity from the CSAR objective area, or providing resources to support the CSAR mission.

d. **Command, Control, Communications, and Computers.** Larger search areas and expanded support operations in threat environments require **detailed C4 planning, coordinated responses, and close control** to ensure economy of effort. Communications plans and emissions control procedures must be kept as simple and as streamlined as possible without decreasing the situation awareness of any member of the CSARTF. UHF LOS should be used as primary CSARTF voice circuit.

e. **Airspace and Ground Operation Deconfliction. The JSRC should deconflict both ground and airspace** to ensure safe CSAR operations and prevent adverse effects on other combat operations. Artillery fire zones, amphibious objective areas, strike aircraft and airflow patterns, no fire zones, restricted fire zones, and altitude restrictions should all be addressed during the planning phase. Additional information on airspace control is contained in Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone."

f. **Preplanned CSAR Responses.** Preplanned responses for specific combat operations may already exist. Procedures should also be established to support an unsuccessful extraction that requires an additional CSAR mission. The planning options shown in Figure III-4 and described below may satisfy these requirements.

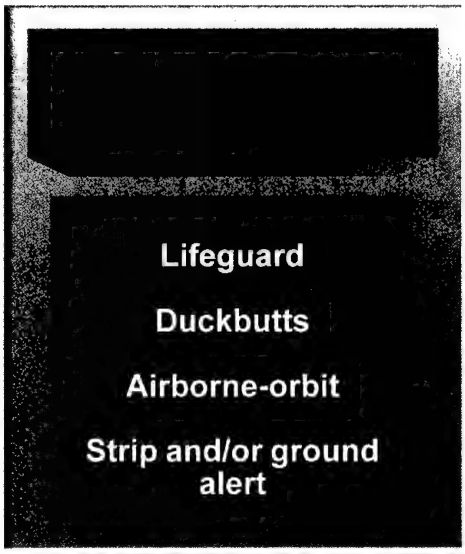


Figure III-4. Preplanned Combat Search and Rescue Options

Naval vessels may be pre-positioned along ingress and egress routes to provide precautionary, quick response CSAR.

- **Lifeguard. Naval vessels may be pre-positioned along ingress and egress routes** to provide precautionary, quick-response CSAR. **Organic or pre-positioned CSAR helicopters based aboard ships** may provide a rapid response. This capability should be coordinated with JSRC or RCC.

- **Duckbutts.** This is a low-threat, overwater precautionary SAR procedure. **Airborne aircraft are positioned along an overwater route to provide SAR assistance if required.** Normally this is used as a precaution when single-engine aircraft or aircraft with certain very important persons aboard have to cross large bodies of water in the event they have to ditch. Duckbutt aircraft should be multiplace aircraft with sufficient endurance and refueling, communications, airdrop, and navigation capabilities to support SAR requirements. Duckbutt aircrews should be prepared to locate survivors, airdrop survival equipment or medical supplies and pararescue personnel, if necessary, and coordinate additional SAR assets.

- **Airborne-orbit. Suitable fixed- and rotary-wing aircraft may be tasked to provide CSAR airborne orbit or alert.** Orbit locations should be outside the threat area and should not compromise CSAR mission intentions. CSAR helicopters may land in a permissive area and maintain a listening watch through airborne platforms or satellite communications networks.

- **Strip and/or ground alert**

  •• **Quick Response Posture (QRP).** CSAR forces are put on alert and expected to respond quickly. This may include the air crew physically sitting in the seats, ready to go on auxiliary power to provide increased strip alert capability. Response time can be reduced to 5 to 10 minutes. Though response time is decreased, a QRP can adversely impact crew endurance over extended periods of time.

  •• **Strip Alert.** CSAR and support aircraft may be preinspected and readied for quick response CSAR missions.

These alert and support aircraft should be based close enough to objective areas or major offensive operations zones to reduce response times.

•• **Forward-Deployed CSAR.** Forward-deployed CSAR may include the deployment of the forces to a forward arming and refueling point (FARP) to sit QRP and/or strip alert closer to the conflict or CSAR operational area in a secure or semi-secure area.

5. Execution

a. **Authentication of Isolated Personnel.** Because CSAR assets are extremely vulnerable during the recovery phase, **isolated personnel will not normally be recovered until their identity has been verified**. Effective authentication methods include ISOPREP data, theater code words, and visual signals.

- **Isolated Personnel Report. Each person subject to action in and over hostile territory will provide individual authentication data on an ISOPREP.** Detailed procedures for use of the ISOPREP card can be found in Appendix D, "ISOPREP Data Collection Checklist and Procedures." During combat, **individuals should review their ISOPREP card prior to each mission.** Completed forms are classified CONFIDENTIAL and are normally kept on file with the individual's unit until requested by the RCC or JSRC. Commanders should establish procedures to ensure that accurate ISOPREP data can be immediately provided through secure means to the JSRC, RCC, or other authorized support agency, as appropriate. Commanders should also ensure that JSRC and RCC have been provided 24-hour contact procedures to obtain ISOPREP information. All subordinate or attached unit personnel should be familiar with ISOPREP procedures.

- **Theater Code Words.** The JSRC and joint or multinational intelligence agencies should develop **standardized theater codes and symbols** for CSAR purposes. These usually are in the form of a CSAR word, letter, number, color of the day, week, or month, and are published in the CSAR SPINS found in the ATO. For units not in the ATO, the JSRC must send this information by other means. Individual authentication phrases, numbers, and descriptions are recorded on the individual's ISOPREP card. Locally developed authentication codes should be minimized but, if used, should be forwarded to the RCC or JSRC once a person becomes isolated.

- **Visual Signals.** In some circumstances, **visual (ground-to-air) signals may be the best (or only) way to communicate with CSAR forces**. Information on theater ground-to-air signals should also be available in the ATO CSAR SPINS. Isolated personnel can use ground-to-air signals to notify search forces of their location when other means of communications are not practical or available. Additionally, ground-to-air signals such as flares or smoke generators can assist rescue forces in the objective area to determine the survivor's exact location. Signal mirrors and flares are useful in the process of identifying and locating isolated personnel.

b. **Using ISOPREP for Authentication.** Effective authentication procedures require creativity and commonality between Service and functional components. Guidelines for using ISOPREP data and other authentication methods must be clear and properly sent to subordinate unit personnel. **The following techniques have been used effectively:**

- ISOPREP information must be durable, providing usable authentication during multiple or future recovery attempts. The JSRC best accomplishes this by initially providing recovery forces with the first two of the four authentication statements, leaving the last two in reserve for future missions. Isolated personnel must not provide, nor be asked to provide any full ISOPREP item during a given recovery. Recovery forces in contact with an isolated person, but unsure of his or her identity, should ask a question derived from a **portion** of the four-digit number, or a portion of one of the two authentication statements. The best methods are adding, subtracting, multiplying, or dividing two of the digits, or asking a question using a **single element** from one of the statements. Examples: If the evader's ISOPREP number is 8147, then a question is "Subtract your third digit from your first digit," and the evader should respond with "4." If the evader's first ISOPREP statement reads "My first dog was a three-legged, yellow, golden retriever named Lucky," then a question is "What color was your first dog?" and the response should be yellow."

- During initial contact, **CSAR forces may need to validate their own authenticity to isolated personnel prior to obtaining further information**. This can be done by using the personal authentication statement. This method allows the rescue force to identify itself and ask an authentication question to the isolated personnel. Another method is to use the isolated personnel's authentication number. For example, "Jack 10, this is Jolly 50. The sum of your first and third numbers is 9." Isolated personnel uncertain of the authenticity of CSAR forces may reverse authenticate if time and conditions permit.

- **ISOPREP data can be used effectively to validate instructions to the isolated person.** If enemy forces are attempting to deceive the isolated person with false radio calls, the CSAR force can instruct the individual to follow only instructions accompanied by valid combinations of the authentication number.

c. **Responsibilities of Isolated Personnel and/or Evaders.** Isolated personnel have a responsibility to assist in their own rescue to the maximum extent possible. Isolated personnel can best **prepare themselves to assist rescue efforts** on their behalf with the activities listed in Figure III-5.

- Isolated personnel should generally not display international distress signals or transmit blind distress calls unless prebriefed to do so, or if forces in the immediate vicinity are known to be friendly. **Emergency distress calls are accomplished by initiating a precontact transmission sequence.** First, the isolated personnel's radio locator beacon should be turned "ON" for 5 to 10 seconds, then "OFF." Next, emergency distress calls are made by repeating "MAYDAY" three times followed by the individual's tactical call sign. Finally, the evader listens for radio contact. For example: [Beacon 5-10 seconds]; "MAYDAY, MAYDAY, MAYDAY, this is Derby 24;" listen for contact. Use of the beacon may not be advisable if the enemy has a credible DF capability.

•• **Emergency Personal Locator Beacon (PLB).** The aircrew emergency PLB is a **UHF transmitter designed to emit a timed transmission** (10-minute cycle) on international guard frequency 243.0 megahertz (MHz). When properly configured, it activates automatically upon parachute deployment.

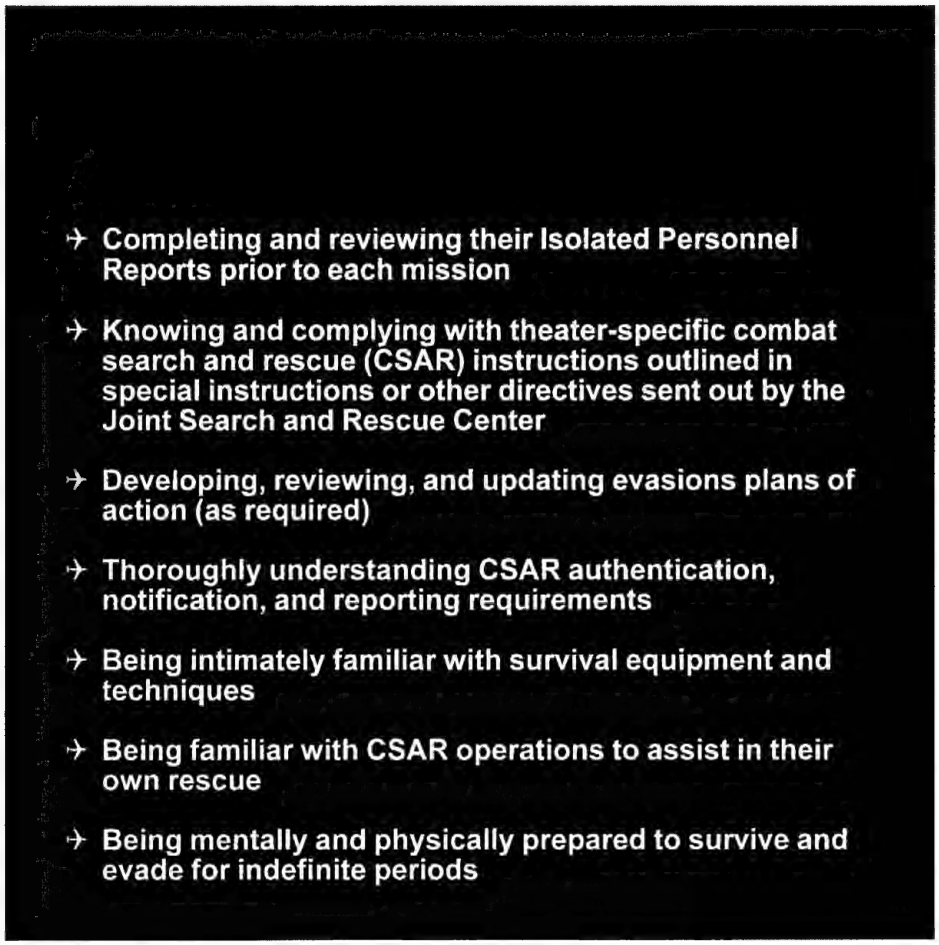


Figure III-5. Responsibilities of Isolated Personnel and/or Evaders

Consideration should be given to disabling the automatic activation if flying over enemy territory. In a survival situation, personnel should remove the PLB from the seat or survival kit and maintain it as an alternate signaling device. **The PLB should only be used as briefed**, as it is susceptible to enemy DF.

•• **Additional Signaling Methods.** Recovery activation signals, improvised (Morse Code, for example) or manufactured signals (PRC-112 codes, or others) may be used to attract CSAR forces to a general location. **Isolated personnel may also use any of the signals described in Figure III-6.**

- Aircrew and other individuals at risk of becoming isolated should be familiar with CSAR procedures as well as other PR methods: E&R, fixed-wing recovery, unconventional recovery, and TRAP. The following paragraphs briefly address isolated personnel's responsibilities to aid in their recovery by these methods. The JSRC establishes an overall PR concept for the operational area. This concept delineates (for planning purposes) when and where each PR method is primary.

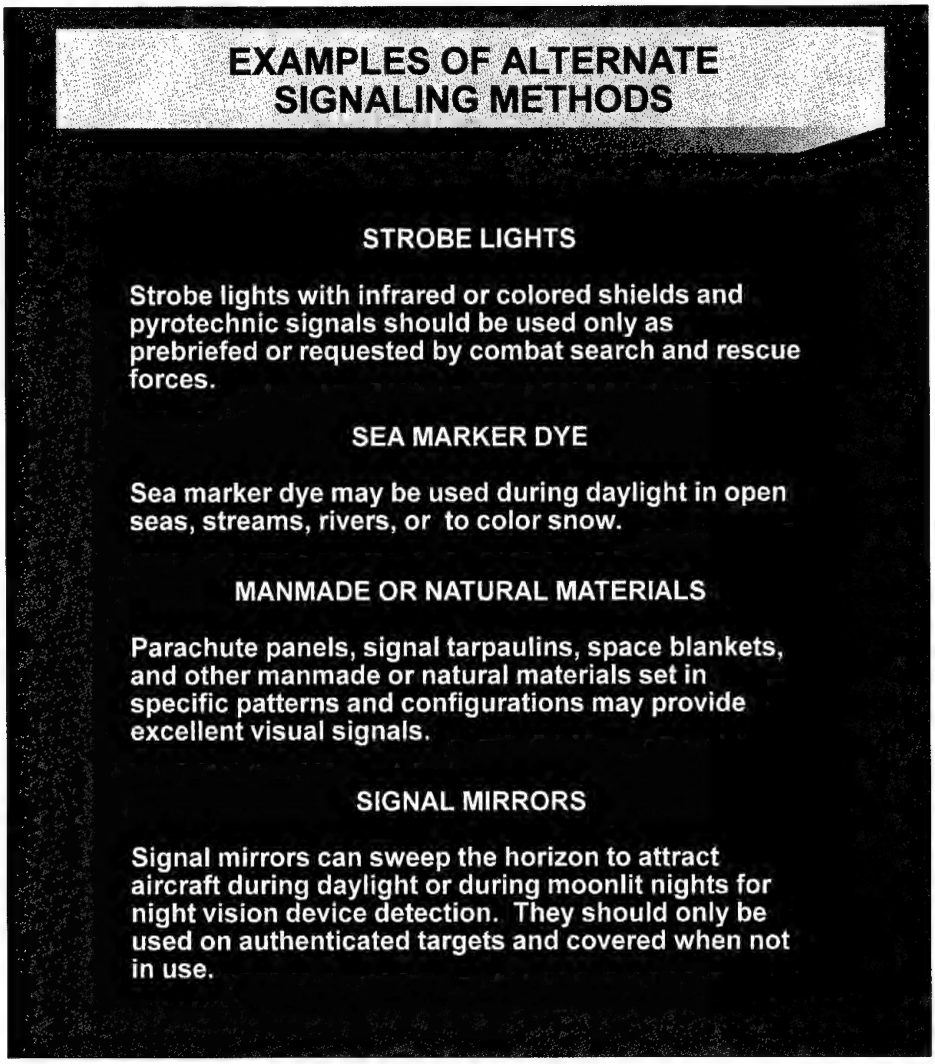
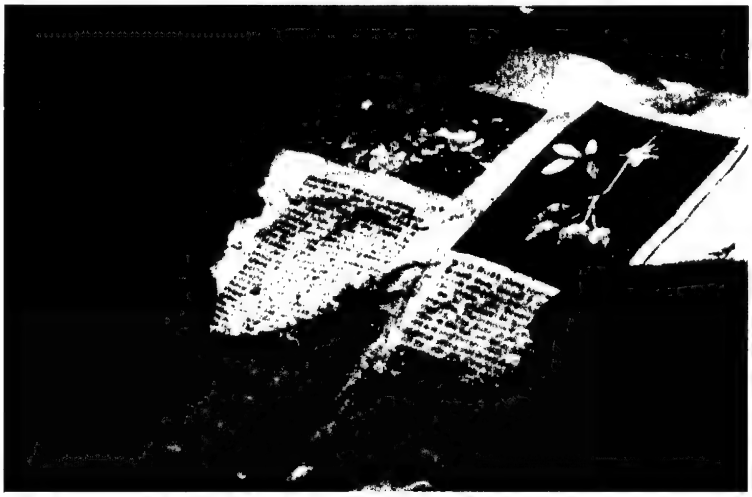


Figure III-6. Examples of Alternate Signaling Methods

- **Isolated personnel evading capture may recover, or be recovered, to friendly control in a number of ways.** They may make their way to friendly or neutral territory without assistance, they may be recovered as the result of planned conventional or unconventional recovery operations, or they may be recovered as the result of chance contact with friendly elements of the local populace performing acts of mercy or seeking profit. (See Joint Pub 3-50.3, "Joint Doctrine for Evasion and Recovery," for a detailed description of recovery forces and operations.) **Potential evaders should be aware of these recovery possibilities** and, when isolated in hostile or non-US controlled territory, become an integral part of the recovery effort. **The following considerations will help facilitate recovery:**

•• **Rotary-Wing Recovery. (1) Landing Zone (LZ) Selection.** Isolated personnel should reposition near an LZ large enough to accommodate a helicopter. The LZ



Isolated personnel should be mentally and physically prepared to survive and evade for indefinite periods; knowledge of terrain is essential.

should provide concealment, be fairly level and free of major obstacles, (particularly high tension lines or telephone wires) and allow easy identification by helicopter crews. The use of chemical lights or other visual markings can aid in identification. If the helicopter cannot land, the survivor will have to be hoisted aboard. Therefore, **LZ suitability must be determined as early in the rescue process as possible** so that this information can be passed to the rescue helicopter prior to entering the objective area. **(2) Preparation for Recovery.** Isolated personnel should be prepared to use all **signaling devices** in accordance with pre-mission briefing or CSAR force instructions. **(3) Recovery.** Isolated personnel should turn away from the landing helicopter to avoid flying debris and hold their position until signaled or instructed to enter the helicopter. Additional isolated personnel responsibilities are outlined in Joint Pub 3-50.3, "Joint Doctrine for Evasion and Recovery."

•• **Ground Force Recovery. Isolated personnel should follow their EPA until contacted by ground forces.** Ground force instructions should be explicitly followed. Specific guidance relating to contact procedures, evader behavior, and associated subjects can be found in Joint Pub 3-50.3, "Joint Doctrine for Evasion and Recovery."

6. Mission Conclusion

Rescue forces should provide for the survivors necessary emergency care and delivery to an appropriate medical treatment facility. The rescue forces should then return to a location where they can debrief, complete documentation, refuel, and prepare for another mission.

CHAPTER IV
SEARCH AND RECOVERY OPERATIONS

"They say they were just doing their job. But they risked their lives to get me out. If you want to find some heroes, that's where you should look."

Capt. Scott O'Grady, USAF (on the combat search and rescue operation after his recovery from Bosnia, 1995)

1. General

CSAR operations, by design, are unique; a CSAR response may be required in any location, land or sea, in any threat environment, and at a time and place not of the isolated personnel's or recovery crew's choosing. Many offensive operations can be successfully planned based on intelligence and targeting data; however, successful execution of CSAR operations often requires creativity, improvisations, and real-time intelligence, even when forces are well-trained and pre-positioned. CSAR operations may include a single or multiple recovery aircraft, CSARTF operations, or other forces capable of providing personnel recovery support to downed aircrew such as: conventional or unconventional ground elements, the employment of surface or subsurface naval assets, or any combination thereof.

2. Initial Assessment and/or Risk Reduction

CSAR operations should not unduly risk isolating additional personnel, routinely expose scarce or high-value assets to extreme risk, or divert critically needed forces from higher priority missions. When the location and/or physical condition of isolated personnel is unknown, the decision to conduct a search in a potentially hostile area and the employment tactics used should be carefully evaluated. Every effort should be made to employ unmanned aerial vehicles, standoff platforms, and satellite systems before committing manned assets to conduct searches in hostile territory. As a minimum, **the following factors should be considered prior to committing forces in threat environments:**

a. Are the isolated personnel known or reasonably expected to be alive?

b. Does the capture of isolated personnel pose an unacceptable political, military, or intelligence windfall for the enemy?

c. When the threat does not permit organized, systematic electronic or visual search operations, will additional CSAR assets be required? (Planners should be aware that high-visibility CSAR operations may alert the enemy to the isolated personnel's political or military importance or may compromise their location.)

3. Search and Locating Methods

Accurate and timely determination of the isolated personnel's position may present major challenges for CSAR forces. **Though the isolated personnel's position may be localized via a radio or visual search, other search modes may be more appropriate** (See Figure IV-1). Night vision device-(NVD) or forward-looking infrared-capable assets are preferred for night searches. If extraction is not imminent, recovery units should avoid compromising the isolated personnel's position.

a. **Electronic Search. Initial radio contact with isolated personnel usually occurs on an emergency (Guard) frequency,**

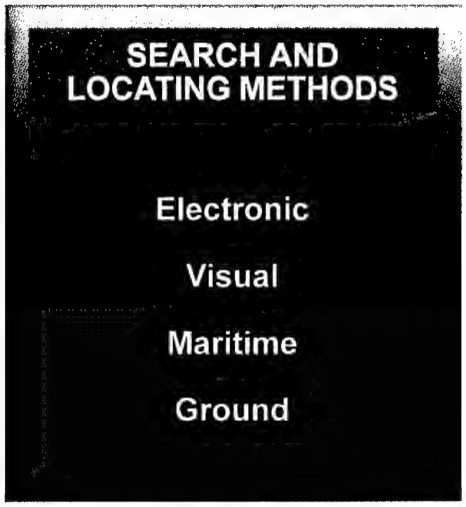


Figure IV-1. Search and Locating Methods

but subsequent transmissions should be on a predesignated CSAR frequency. In a low-threat environment, **the JSRC, in coordination with the EW section, should determine an initial electronic search altitude** and orbit location. The CSAR aircrew should adjust the search altitude and location based on enemy acquisition radar capabilities against the minimum safe altitude commensurate with the aircraft's operating parameters. Current radio systems are all subject to some degree of enemy jamming, deception, monitoring, or DF intrusion.

- **AN/PRC-90. The AN/PRC-90 is an emergency UHF transceiver tuned to two preselected frequencies for voice and beacon transmissions.** It has no secure or low probability of intercept capability. Because the enemy can intercept its signal, isolated personnel should limit radio transmissions and use code words until the recovery or extraction phase.

- **AN/PRC-112. The AN/PRC-112, also an emergency transceiver, has five UHF and/or VHF frequencies, two of which are programmable.** When the AN/PRC-112 is turned on and then interrogated, the transponder feature will transmit a preprogrammed, high-speed, short-duration, pseudo-random, noise-coded message that is extremely difficult to intercept or jam. A burst is transmitted by an aircraft, or any other vehicle equipped with the AN/ARS-6 personal locator system (PLS) and/or downed aviator locator system (DALS). The AN/ARS-6, also called the lightweight airborne recovery system (LARS), operates in the UHF 225-300 MHz range. The burst transmission triggers a coded identification reply from the isolated personnel's AN/PRC-112. If the reply is valid, the AN/ARS-6 computes slant range and direction to the radio being queried. The system's usable range varies from approximately 111 nautical miles (NMs) at 35,000 feet to approximately 70 NMs at 5,000 feet above ground level. The AN/ARS-6 is limited, however, by its LOS capability, thereby presenting a major concern for helicopters operating in a threat environment at low altitudes. In addition, final authentication must still be ascertained to ensure the AN/PRC-112 operator is indeed the isolated personnel.

- **AN/PRQ-7.** The AN/PRQ-7, combat survivor evader locator (CSEL) system should significantly reduce the time and uncertainty associated with the search for isolated personnel. The CSEL system provides a two-way over the horizon (OTH) encrypted databurst communications capability along with precision global positioning system (GPS) geolocation. This provides the JSRC with the ability to positively identify, authenticate, and locate isolated personnel prior to employing rescue forces. CSEL messaging capability will also provide isolated personnel with a means to pass physical status, threat, weather, terrain, and other information critical to the rescue or extraction. Additionally, it allows the JSRC to pass information

about the rescue mission back to isolated personnel. The primary vehicle for two-way OTH communications is UHFSATCOM. In a high threat environment COBRA provides one-way communications through national systems. CSEL also has the capability to transmit an emergency message and location via the COSPAS and/or SARSAT data system. Besides the OTH data communications, CSEL possesses a 10-frequency LOS UHF and/or VHF voice capability for communication with rescue forces.

- **Automatic Direction Finding (ADF) Equipment. Use of the UHF and/or ADF equipment simplifies the task of locating isolated personnel.** When tuned to the proper frequency and with the aircraft wings level, the relative bearing to the transmitting radio is displayed. Caution should be used with this technique, as enemy forces also employ DF techniques to locate isolated personnel. Enemy DF and intelligence-gathering methods should be understood by all CSARTF participants prior to utilizing DF locating methods. Use of aircraft with high speed, accurate DF equipment, such as the ALD-9, will minimize required transmissions by the survivor and reduce the probability of enemy detection.

- **Search and Rescue Satellite. SARSAT is considered a national asset to be employed in support of national interest operations, to include SAR and CSAR.** The SARSAT and associated ground systems are capable of monitoring interference signals and transmitters that malfunction on guard frequencies. Malfunctioning transmitters could adversely affect the location process or compromise unit or aircraft locations. When using SARSAT, planners should ensure that satellite visibility and availability schedules are published in ATO SPINS. They should also ensure that procedures are established to disseminate SARSAT visibility periods and ground station data to CSAR and support agencies.

b. **Airborne Visual Search. CSAR search units may be able to plan a defined search pattern** if the threat environment allows. Search units should consider searching along the isolated personnel's intended flight or surface route, areas offering concealment, and prebriefed locations. Search patterns should avoid major lines of communications, such as roads, railroads, large rivers, or open valleys. These areas are normally frequented by people and often pose the greatest threat to CSAR forces and evaders. Combat reconnaissance assets and, in some situations, AC-130 aircraft can conduct modified visual searches of specific areas in non-permissive threat environments. However, their effectiveness is best if used once the search has been narrowed. **The evasion or concealment site of isolated personnel may be some distance from the initial contact or point of loss.** Figure IV-2 depicts the parallel, creeping line, expanding square, and sector searches. Additional search pattern information is contained in Joint Pub 3-50, "National Search and Rescue Manual Vol I: National Search and Rescue System."

c. **Maritime Search.** The airspace above oceans, seas, bays, estuaries, islands, and coastal areas (including amphibious objective areas) is considered part of the maritime environment. Maritime search procedures are discussed in detail in Joint Pub 3-50, "National Search and Rescue Manual Vol I: National Search and Rescue System," and Joint Pub 3-50.1, "National Search and Rescue Manual Vol II: Planning Handbook."

d. **Ground Search.** If terrain, vegetation, isolated personnel's condition, or the threat makes an air search unfeasible, a ground

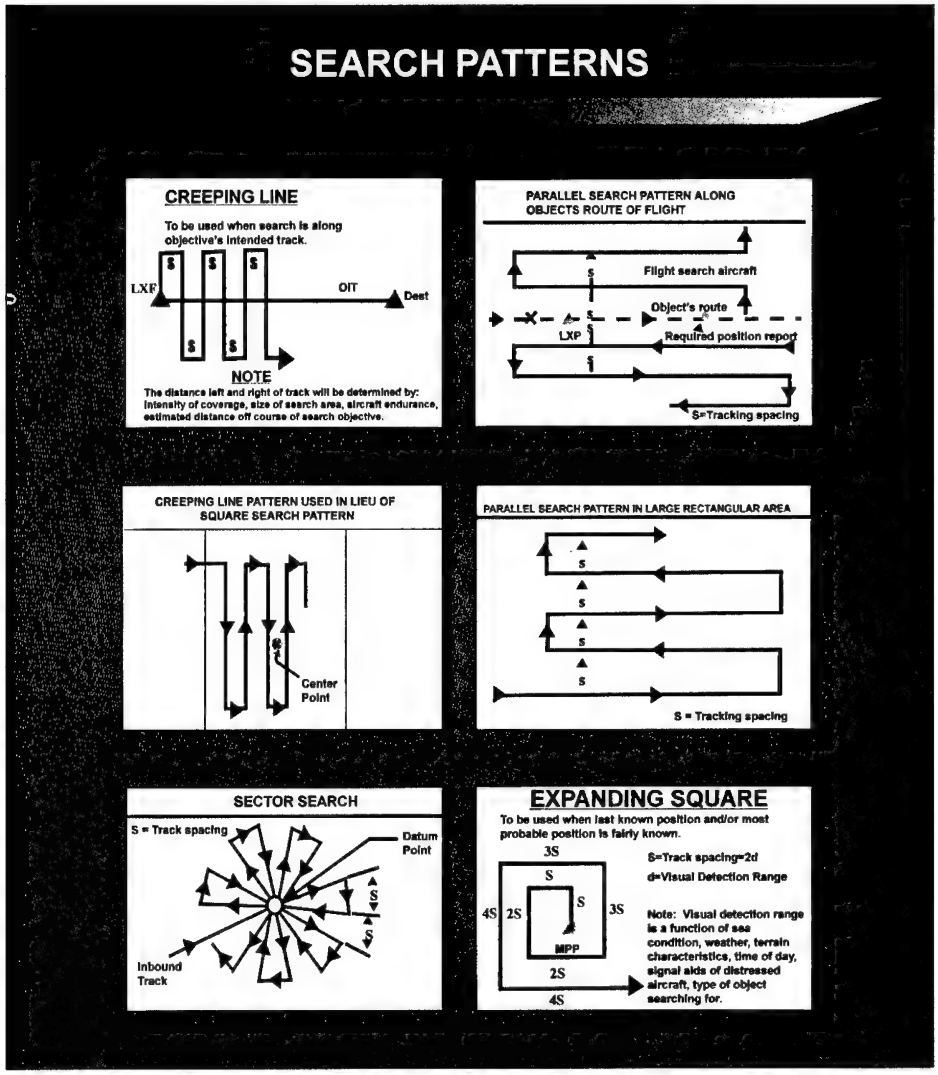


Figure IV-2. Search Patterns

search may be required. **Ground forces should locate and move isolated personnel to a better position for extraction.** Ground forces should not be inserted in hostile territory unless the CSAR contingency was specifically planned and briefed. Consideration should be given to air and ground fire support to facilitate extraction. Secure communications capability with a deployed ground team is highly recommended. The JSRC should also investigate the possibilities of using human intelligence assets in the area to locate isolated personnel and to determine their status (i.e., health, alive or dead, captured, evading, direction of movement).

4. Objective Area Search Operations

Once in the objective area, it may be difficult to visually obtain the isolated person's exact location. **An airborne visual search in the objective area can increase the risk to the recovery aircraft, other assets, and isolated personnel.** Extended airborne

searches should be conducted only if the threat allows the recovery force to maneuver safely in the objective area. A limited visual or electronic search employing radio DF capability may be employed by recovery aircraft to locate isolated personnel. **Every effort should be made to minimize highlighting recovery assets.** The CSARTF should be prepared to use the isolated person to signal their location and if possible vector the recovery vehicle to their selected pick up location.

a. **RESCORT Terminal Area Search. The search is normally conducted by the escorting aircraft.** If the initial or holding points are in a totally secure area, extraction helicopters may remain there while the RESCORT locates and authenticates isolated personnel. Extraction site location and ingress and/or egress routes will be relayed to the rescue asset. RESCORT should provide suppressive fire while the extraction is conducted.

b. **Electronic Search. All CSARTF participants should be prepared to establish communications with isolated personnel.** Radios should be preset to CSAR operations channel frequencies. The PLS, DALS, and/or LARS should be properly tuned to the PRC-112 frequency and discreet code. Unless a communications-out extraction is required and planned, a transmission with the isolated personnel's call sign should be made when LOS communications are expected. **When communications are established, the recovery aircraft can be vectored to the precise extraction location.** The recovery force may be able to "home-in" on the isolated personnel's radio transmission, if the equipment is available. If no response is received, isolated personnel may be able to receive, but not transmit. The CSARTF should continue to monitor and transmit on designated frequencies, or attempt contact with the isolated personnel on other CSAR frequencies. **Once contacted and authenticated, isolated personnel should be asked to identify their position, threat conditions permitting.**

c. **Ground Search Option.** The location of isolated personnel may not be precisely known, or the threat level may be too high to conduct an air search. If so, a ground search may be required. A clandestine infiltration by any type of rescue vehicle may be used to insert the ground team. Once the team is

Evacuation helicopters should remain at the initial or holding points while the RESCORT locates and authenticates isolated personnel.

inserted the rescue vehicle can leave the terminal area and await extraction notification while the isolated personnel are located, authenticated, and prepared for extraction.

5. Single-Ship (Helicopter) Operations

Depending on theater operating procedures, whether single- or multi-ship (helicopter) operations, recovery helicopters may not be launched until the location and authentication of distressed personnel have been reasonably verified and recovery is feasible. Though not generally recommended, **certain situations may warrant single-ship operations**. Clandestine penetration may best be conducted using single-ship recovery operations under the cover of darkness. This concept is based on a low-altitude profile and reduced visibility. **The helicopter's best defense is to remain undetected.** Forces and assets employed should be capable of detecting and countering major enemy weapon systems, whether IR-, radar-, or electro-optical-guided. In addition, satellite or other secure long-range communications capabilities should be available to facilitate C2, as well as recovery of CSAR forces, should it become necessary.

6. Multi-Ship (Helicopter) Operations

The **primary purposes for multi-ship CSAR operations** are shown in Figure IV-3. Multi-ship CSAR operations enhance combat effectiveness in a number of ways. When more than one helicopter is used, **the secondary helicopter should be prepared to assume the lead and conduct the recovery should the primary helicopter abort**. Therefore, a primary and secondary helicopter are normally flown to the objective area. Operational experience shows that helicopters with advanced avionics and navigation systems, such as the heavy-lift assets normally employed by SOF, are excellent pathfinders for reduced visibility operations. However, the high radar or IR signature of heavy-lift SOF aircraft may prohibit its use under certain threat conditions. Medium-lift assets (such as the H-60 variants) generate the least amount of dust and debris in the landing phase, and reduce the probability of detection in the objective area. Knowledge of CSAR aircraft capabilities and procedures and improved interoperability between components can best be ensured through joint CSAR training and exercises.

a. **General Considerations. A variety of formations and techniques exist within and between components.** All techniques should consider terrain, visibility, aircraft and component capabilities, and aircrew experience. Formation briefs should address flight integrity criteria, mission roles, and individual aircraft responsibilities. **CSAR missions should be conducted with minimal radio transmissions**, relaying safety of flight, threat, and critical mission data only when required. Also, SOF can be used in a variety of mission profiles, in addition to conventional recoveries. Such support must be coordinated with the joint force special operations component commander. Some general overland and overwater techniques have been developed, validated, and successfully employed in multi-ship day and night CSAR operations. These techniques provide guidance for planning and executing CSAR options.

b. **Overland Extraction (Day)**

- When the **CSAR recovery element** is on the ingress route at approximately 2-4 miles from the extraction point, the wingman establishes separation of approximately 1/4 mile. When the LZ is in sight, the lead aircraft commences to the approach and landing. On short final, the wingman passes off the right side of lead, maintaining an airspeed of 80-100 knots and a distance of approximately

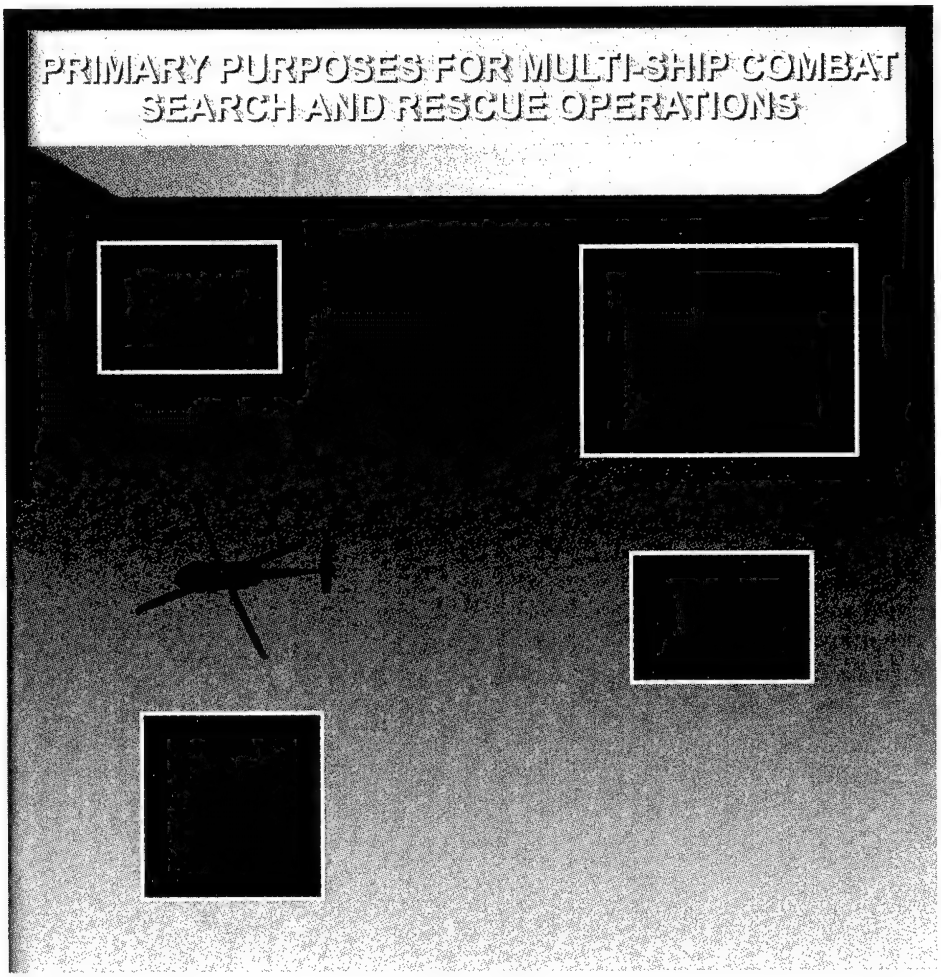


Figure IV-3. Primary Purposes for Multi-Ship Combat Search and Rescue Operations

400 meters. The wingman then enters a right hand orbit, permitting left side armament to engage targets outside of the orbit; the flight engineer or hoist operator maintains visual contact with the lead aircraft on the ground. In the event the lead aircraft waves off or goes around, the wingman will be able to execute a landing for the extraction. When the lead (extraction) aircraft is ready to depart the LZ, a "5 seconds out" call is transmitted and the wingman initiates departure along the briefed egress route to sweep the route for enemy forces and threat activity.

- **An alternate method of executing the element recovery** is for the lead aircraft to assume the role of "pathfinder and/or gunship" and the wingman to serve as the extraction aircraft. At the point where the aircraft establish separation, the lead aircraft proceeds to the extraction LZ, conducts an LZ overflight reconnaissance maneuver, and breaks right to establish its cover orbit. If the LZ is "hot," lead breaks left, calls for flight egress and departs the area. The wingman terminates the approach profile, maneuvers to avoid the threat, and joins lead for egress. If either aircraft takes

hostile fire during the ingress, the approach to landing, or on the egress route, both aircraft should engage the source of the hostile fire while attempting to evade continued engagement. After departing the engagement envelope, the flight should proceed to a predesignated reconstitution point. At this time, they need to determine if another attempt is possible, an alternate extraction LZ is necessary, or if supporting forces are required to suppress the threat. If the extracting aircraft is engaged during extraction, the wingman should maneuver to maximize the use of suppressive fire weapons. The extraction aircraft determines if it is possible to continue the recovery, or if immediate departure is necessary.

- Chalk two takes spacing on final and lands or hovers, either right or left determined by lead's call, in a position cocked off to give a defensive cover position based on terrain, threat, power, and weather so the formation can cover all quadrants with the onboard weapons. This tactic requires the use of terrain and vegetation for concealment. In the case of open desert or snow areas, the potential for increased dust or snow exists. This may reduce visibility for both aircraft, thereby preventing threat engagement. The increased signature could also make the CSAR element visible to the enemy at a significantly increased distance.

- **The first crew noticing enemy activity** should call the activity type, approximate distance, and heading from the engaged aircraft. On ingress or egress, subsequent routing should be adjusted to avoid engagement while supporting forces suppress the threat as required.

c. **Overland Extraction (Night with Sufficient Visibility).** When conducting night operations with sufficient visibility (approximately 20 percent moon disk equivalent illumination with night vision goggles [NVGs]) or in a marked LZ, **daytime procedures can generally be applied**, but must be tempered with crew and environmental factors (experience, weather, and terrain, for example).

d. **Overland Extraction (Night with Insufficient Visibility)**

- In the event that weather, insufficient illumination, or featureless terrain significantly reduces night visibility, **aircrews should use procedures that minimize the operational degradation experienced**. Formations should be more restrictive. Reduced separation between aircraft to maintain visual contact will provide less maneuverability. Reduced visibility during terminal phase will influence tactics and create a more difficult extraction environment. Determination of the extraction location may be aided by the use of illumination or signaling devices. The approach and landing will require extra vigilance on the part of the rescue force.

- When conducting reduced visibility night operations, the lead aircraft should overfly and mark the LZ. **Trailer tactics may be used until the terminal phase of the mission.** During objective area operations, both aircraft should reduce their separation to keep each other in sight. When directly over the extraction LZ, the lead aircraft should drop multiple chemical light sticks. First pass landings are possible, but the overflight marking of the LZ greatly enhances visual cues and reduces the probability of a wave-off or go-around.

e. **Overwater Extraction.** Overwater CSAR tasking may occur in contested open ocean or within the coastal or inland waters of hostile territory. **The recovery aircraft**

may be forced to spend a greater amount of time at the extraction point, due to the need to hoist or mechanically recover the isolated personnel. Rescue swimmers may be deployed to assist in the recovery. Chemical lights are excellent markers for night recoveries. In case of an extraction along a river or stream, the exposure to threats is slightly reduced due to terrain features vegetation masking the aircraft. Single-ship operations afford little protection from possible threats. **Overwater operations allow for early detection and avoidance of enemy threats, but offer little protection from those threats.** Multi-ship operations are similar to overland operations in terms of locating isolated personnel and suppressing enemy weapons. Patterns typically used to cover aircraft in a hover are discussed in Chapter V of this publication, "Task Force Operations."

- **Service or functional component-specific recovery tactics for overwater operations are often influenced by equipment and training constraints.** Tactics should be further addressed in the theater or operational CSAR plans. Isolated personnel can expect a helicopter to deploy a rescue swimmer or pararescueman to assist in the recovery. Once the swimmer has control of the isolated person, the swimmer hooks him or herself and the isolated personnel to the rescue hoist hook for extraction. At night, the survivor may expect the aircrew to deploy several IR chemical lights to provide the pilot with visual cues to maintain a hover.

- **Deception tactics protect the extraction aircraft and isolated personnel** from detection or engagement in maritime or open water environments. Some deception planning areas include: route selection, false extractions, and deceptive emitters. Diversionary mission activity requires the deception aircraft to fly in a manner that draws possible surface threats away from the hovering extraction aircraft. Meanwhile, the diversion aircraft maintains the ability to either defend itself or disengage the threat and depart the area. This also allows the deception aircraft to maintain a constant awareness for additional threats. **CSAR forces employing deception tactics must coordinate their specific intentions** with other agencies or forces operating in the area to prevent fratricide. Additional deception techniques are discussed in Joint Pub 3-58, "Joint Doctrine for Military Deception."

Note: The following paragraphs describe other PR options available to the JSRC to recover isolated personnel. These options normally require longer to implement if the required forces do not have CSAR as an assigned task.

7. Conventional Ground Force Recovery

Conventional forces may include infantry patrols, mechanized patrol, or armor units. **These units may recover isolated personnel in close proximity to friendly forces.** Planners should consider developing methods to relay authentication and location data to these forces. These units should be prepared to relay information concerning the isolated personnel to rear echelon C2 sources to prevent unnecessary CSAR tasking.

8. Special Operations Recovery

a. **Concepts. SOF possess unique equipment, procedural expertise, and organic capability for personnel recovery.** SOF CSAR or recovery capabilities may be especially advantageous in areas where air superiority is denied, or when a clandestine recovery is required due to political sensitivities within the operational area. **SOF CSAR missions resemble a special**

Special operations forces possess unique equipment, procedural expertise, and organic capability for self recovery.

operations direct action mission characterized by detailed planning, preparation, rehearsal, and thorough intelligence analysis. Joint Pub 3-05.3, "Joint Special Operations Operational Procedures," provides JTTP for the conduct of special operations.

b. **Clandestine Options.** SOF can be employed in a clandestine manner to support recovery if time and resources are available. SOF can provide assisted recovery where SOF are pre-positioned to support recovery of friendly personnel when friendly loss against a high-threat target is anticipated. SOF can be pre-positioned for assisted recovery by manning SAFEs or other designated areas for recovery. Additionally, SOF may conduct or work in concert with an established E&E mechanism as discussed in Joint Pub 3-50.3, "Joint Doctrine for Evasion and Recovery."

9. Fixed-Wing Recovery

Circumstances may warrant using fixed-wing aircraft for recovery. The concept of operations would be similar to that of airlift aircraft conducting an air landing. Airfields should be designated and surveyed by combat controllers or other personnel qualified in LZ preparation procedures. **Fixed-wing aircraft provide greater range and speed**, both invaluable capabilities when transporting critically injured personnel over vast distances.

10. Naval Vessel Recovery

Naval vessels maintain a viable capability for isolated personnel extraction, but have a large radar signature and are vulnerable to coastal defenses. **The threat from coastal defenses may be degraded** through naval surface fire support, other suppressive fire assets, and the employment of special boat unit (SBU) craft. SBU craft launched OTH from other naval vessels and coordinated with other fixed- or rotary-wing assets provide an enhanced, low-radar signature capability. In general, submarines have no means of self protection while surfaced.

a. **Submarine Coordination Procedures.** Submarine missions are normally tasked by the Navy component commander. **Attack submarines, nuclear (SSNs) and submarines equipped with dry deck shelter (DDS) are the most effective submarine platforms.** Effective coordination of airborne

assets is essential to provide isolated personnel location data to the SSN while operating in the enemy threat envelope. The principal advantage of the SSN in the CSAR role is the capability to clandestinely position close to the enemy coastline.

b. **SSN Search and Recovery.** In a low-threat environment, **the submarine may elect to surface and conduct the extraction with little external support**. SSNs have the ability to operate independently in most antiair warfare threat environments. **SSNs can also clandestinely insert special teams** to conduct overland CSAR missions in coastal areas. Submarines have a limited capability to search large areas compared to aerial search assets. However, SSN search and terminal guidance can be enhanced by use of the AN/ARS-6 (PLS, DALS, and/or LARS) during deployment preparation. To effect recoveries within a threat envelope, **the SSN may employ the "snag and tow" technique, or "lock-in swimmers" through DDS**. The "snag-and-tow" consists of the isolated personnel catching or "snagging" a line with the submarine's periscope and being towed beyond the threat envelope. When clear of enemy threats, **the submarine surfaces to conduct the extraction or position the isolated personnel for helicopter or surface recovery**. The DDS recovery may consist of sea-air-land teams (SEALs) escorting the isolated personnel into the DDS by means of the SEAL delivery vehicle or surface swimmers. The advantage of the DDS system is that the SSN is not required to surface after the isolated personnel have been recovered.

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CHAPTER V
TASK FORCE OPERATIONS

"By your choice of profession, you have expressed your willingness to put others ahead of yourself."

Samuel B. Skinner, Secretary of Transportation
(to the 1990 graduating class, US Coast Guard Academy)

1. General

Even the least sophisticated weaponry employed by enemy forces can be lethal to unescorted CSAR recovery vehicles. **Several factors may require the formation of a cohesive CSAR effort consisting of similar or dissimilar aircraft or forces.** Among them are the concentration of enemy weapons and troops; the enemy's degree of integration with other defensive systems or C4I networks; the accuracy and timeliness of friendly intelligence data; the number of personnel requiring recovery; and the location and physical condition of the isolated personnel. **The assembly of two or more assets to support a single CSAR effort is referred to as a CSARTF.** (Figure V-1 depicts a notional CSARTF.) This chapter outlines critical aspects of each participant's role during task force operations, and provides amplified guidance which may be especially beneficial to RESCORT and recovery assets en route to, within, and returning from the objective area.

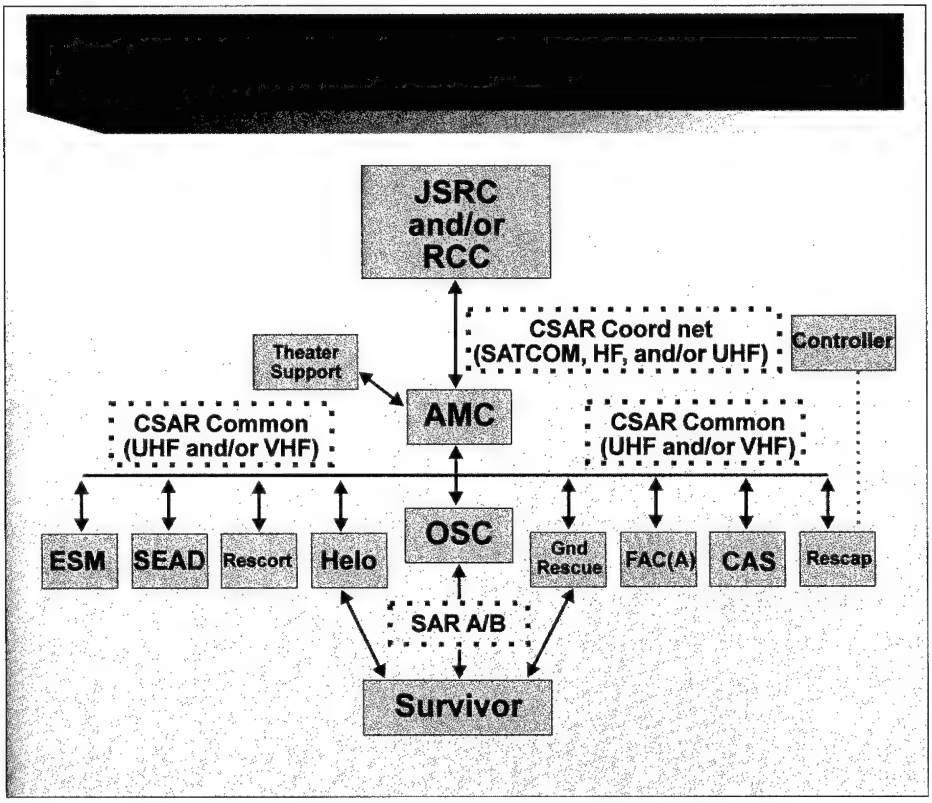

Figure V-1. Notional Combat Search and Rescue Task Force

2. Airborne Mission Commander

a. **General.** Appendix G, "CSAR-Capable Assets," describes typical AMC assets. Though capabilities differ slightly among the Service and functional components, **the primary role of any AMC is to serve as an airborne extension of the JSRC or the executing component's RCC.** The AMC aircraft should be a multiplace aircraft with the best combination of on-station time and communications package. It should be capable of controlling multiple airborne assets executing diverse and often complex events. AMC crews should be trained in this role.

b. **Authority and Responsibility. Control of the CSARTF rests with the AMC when CSAR forces are airborne.** Designated by component RCCs or higher authority, the AMC normally assumes tactical control of assets assigned to a specific CSAR mission. The AMC coordinates CSAR efforts between the task force and the RCC or the JSRC, monitors the status of all elements, appoints or relieves the OSC, requests additional assets as required, and ensures that recovery and supporting forces arrive at designated locations to accomplish the CSAR mission. Once airborne, the AMC aircraft should establish a precautionary orbit clear of major threats. **The AMC crew supports the CSAR effort** by providing navigation assistance and relaying isolated personnel intelligence and authentication data to C2 agencies and CSARTF elements. **The AMC crew also:**

- Coordinates establishment of the **CSAR communications nets**.
- Manages the **flow of aircraft** to and from the objective area.
- Coordinates **helicopter aerial refueling**.
- Coordinates **helicopter ground refueling** at FARPs (or other locations) as required.
- Advises the JSRC or RCC **of mission support requirements**.
- Coordinates appropriate **no-fire zones** in the objective area.
- Advises **CSARTF participants and the JSRC or RCC** of mission progress, threats, and weather conditions affecting mission progress.

3. Rescue Combat Air Patrol

RESCAP aircraft are air superiority aircraft assigned to protect the CSARTF and isolated personnel from airborne threats. RESCAP forces should be available before committing rescue forces if enemy air activity is forecast along the intended flight route or in the objective area. **RESCAP can also function as OSC when directed**, and they may assist in detecting and establishing communications with isolated personnel due to their higher operating altitudes.

4. Forward Air Controller, Airborne

The FAC(A) can provide the CSARTF with significant tactical advantages. Either planned or diverted FAC(A) aircraft can locate and authenticate isolated personnel prior to arrival of the CSARTF, and provide current threat assessment near the objective area. **Initial on-scene coordination of the CSAR effort should be assumed by the FAC(A)** when no dedicated RESCORT assets are available, or until the recovery asset commits for the extraction. The FAC(A) is trained to direct ordnance against ground targets, and can provide a link between the recovery asset and other threat suppression assets. Fast-strike

aircraft may require FAC(A) assistance to effectively support the recovery asset. FAC(A) requests or diversions should be considered to provide an OSC capability prior to CSARTF or recovery asset arrival, or when threats in the objective area require extensive suppression.

5. On-Scene Commander

An OSC is normally designated by the JSRC, executing RCC, or AMC when the tactical situation warrants. Initially, the OSC may be the downed crew's wingman, a forward air controller, or any other aircrew member capable of providing on-scene coordination. However, the RESCORT commander should be appointed OSC for preplanned or follow-on CSAR operations. **The OSC normally controls operations in the objective area**, and ensures a coordinated and timely recovery effort. The OSC and recovery force elements should coordinate closely to select ingress or egress routes and objective area tactics based on hostile activity, terrain, and the number of isolated personnel being recovered. All CSARTF participants should contact the OSC before entering the objective area. An OSC checklist is located in Appendix B of this publication, "On-Scene Commander Checklist."

SANDY MISSION

On 1 September 1968, Lt. Col. William A. Jones III, commander of the 602nd Special Operations Squadron at Nakhon Phanom, launched in an A-1H Skyraider on a combat rescue mission. The Navy had retired the Skyraider from combat service the previous April (although a few EA-1F Skyraiders operated from carrier decks in the electronics role until December), but the USAF continued to employ the prop-driven machine for the Sandy mission, the perilous job of escorting helicopters on combat rescue missions. On this day, with the call sign *Sandy One*, Bill Jones was flight leader and on-scene commander of an attempt to rescue the crew of an F-4D Phantom, downed by AAA fire the previous day. Bill's wingman was Captain Paul A. Meeks in *Sandy Two*.

Entering North Vietnam from Laos, Lt. Col. Jones heard Phantoms talking to the downed pilot. The second crew member had apparently already been captured. Though the downed pilot remained in voice contact, his exact location was not clear. Bill Jones took his Skyraiders beneath clinging overcast with rugged hills all around him, some with their peaks lost in the gray murk. It was the most dangerous kind of flying, but Jones persisted, trying to obtain visual references to match the survivor's voice description of his location.

As Jones and Meeks turned toward the scene, an explosion shook Jones' aircraft and the cockpit began to fill with smoke. He had been hit but the tough, durable Skyraider was not ready to go down yet. The smoke cleared and Jones flew a zigzag pattern that kept him free of criss-crossing AAA fire.

Bill Jones' mission now depended upon two factors: fuel and time. Jones in the injured *Sandy One* led Meeks in *Sandy Two* beneath the overcast, provoking enemy fire, still trying to pinpoint the survivor's exact position. Finally, the downed pilot reported on voice radio that two Skyraiders were directly overhead. While trolling for fire (Jones was so low that an AAA gun was actually firing down at him from a slope) and taking damage, Lt. Col. Jones had pinpointed the survivor.

The AAA emplacement was perilously close to the downed airman; it had to be neutralized before a rescue could be attempted. Feeling that he had the gun pinpointed and was in the best position for an attack, Jones brought the A-1H Skyraider around in a turn so tight that its wings were vertical to the ground. But then, as he opened up with 20-mm cannon fire and CBU-8 cluster bombs, more gunfire ripped into his Skyraider and pierced its thin metal skin.

Jones now had a life-threatening problem. The rocket motor for the Skyraider's ejection system, located behind Jones' head, had been ignited by the AAA fire. Fire rushed back from the canopy. This time when smoke crept up around Jones' clothing and obscured the instrument panel, it did not clear up as before. The heat seared Jones' face and hands as flames began to consume the Skyraider. He decided that there was no choice but to bail out. So he climbed, leveled off over a clear area, and blew his canopy.

The ejection seat didn't work! Bill Jones was stunned with disbelief. He reached for the secondary release and nothing happened! Thoughts of home and family rushed through his mind as air rushing into his open cockpit fanned the flames. His oxygen mask literally melted off, baring his full face to the heat. Jones was being burned badly while trying to radio his position and that of the downed airman — and hearing the screech in his earphones, which occurs when a radio frequency is overloaded, several other pilots screaming at him to "bail out, now!"

Bill Jones continued maneuvering in a Skyraider which, by this time, should have disintegrated in a mid-air fireball. The North Vietnamese continued to stalk him with criss-crossing AAA fire, while their troops pressed relentlessly closer to the survivor. By now, Jones' A-1H was engulfed in a dazzling halo of flames and was trailing a thick, acrid stream of smoke that swept back over the confined valley, a telltale lure for the AAA gunners.

In excruciating pain, choking, but with a functioning radio, Lt. Col. Jones struggled to transmit the location of the downed pilot and the AAA batteries. The familiar screeching, as the airwaves again were overloaded with pilots in the area as they shouted at Bill to get out of his burning Skyraider. Just when he thought he had broken through to pass the vital information to the rescue force, his transmitter gave off electrical smoke and died.

Somehow, with Meeks helping on his wing, (Jones could still receive), Lt. Col. Jones coaxed the mortally damaged A-1H back towards Nakon Phanom. His eyes were rapidly swelling from the burns when he set up a bad-weather approach to Nakhon Phanom. After he landed the "totaled" aircraft, the survivor still foremost in his mind, Bill Jones debriefed the mission from an ambulance stretcher, giving vital information which led later to a successful "save" of the downed F-4D pilot.

Few examples of greater persistence or downright bravery emerged from the entire American effort against North Vietnam. For his efforts on this mission, and extreme heroism under fire, Lt. Col. Bill Jones was awarded the Medal of Honor.

SOURCE: Dorr, Robert F., Air War-Hanoi, Blandford Press, 1988

6. Helicopter Recovery Force

The primary recovery and extraction asset in most CSARTFs is a helicopter. Because helicopters operate in a low-altitude regime, navigational assistance and suppression of enemy defenses is vital. A typical escort mission involves the steps listed in Figure V-2. Successful escort requires close coordination between all participants.

7. General RESCORT Concepts

a. **Capabilities.** Aircraft assigned RESCORT responsibilities should be **fixed- or rotary-wing aircraft capable of providing the rescue helicopter with communications relay and suppressive fire support**. RESCORT pilots should be specifically trained for CSARTF operations. When employed, the RESCORT and other elements of the CSARTF should operate under the tactical control of an AMC. However, the recovery asset and other elements of the RESCORT contingent should be transferred to the tactical control of the RESCORT commander or OSC at a predetermined, prebriefed point and time near the objective area. **CSARTF operations at night and in high threat environments require unique weapon system capabilities.** Major differences in the lethality of threats to helicopters and fixed-wing aircraft should be carefully evaluated prior to assigning RESCORT assets. RESCORT aircraft should have the ability to **sweep an ingress route and rendezvous with the escorted asset** in the event of a route change or other action.

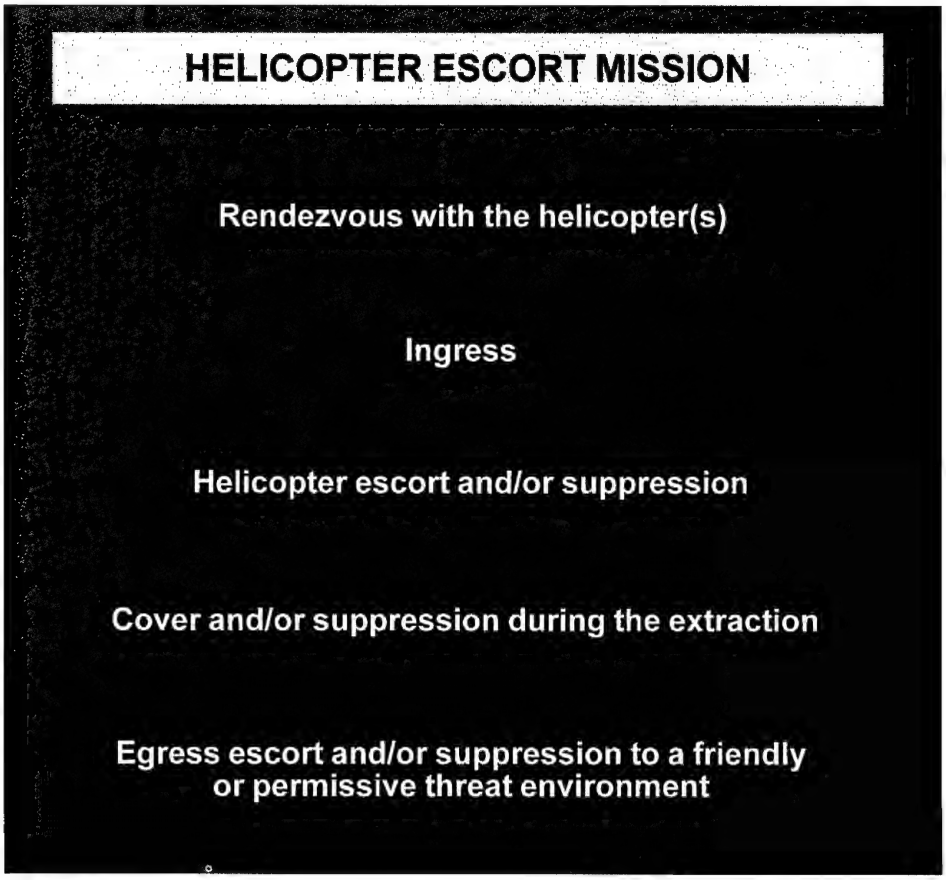

Figure V-2. Helicopter Escort Mission

RESCORT aircraft should also be able to **respond quickly to all threats in the vicinity of the LZ** and **deliver accurate suppressive fire** while recovery assets are in the extraction phase of the mission. Coverage should continue through egress until recovery aircraft reach a friendly or permissive threat environment.

b. **Responsibilities. RESCORT tactics, routing, potential threat encounters, and countermeasures should be understood by all participants.** On other than scramble operations, escort briefings are mandatory and should include rendezvous points, communications, navigation points, number of helicopters, LZ positions, and code words. **The number and type of RESCORT aircraft may determine the success of a CSARTF operation.** The recovery helicopters can augment RESCORT suppressive fire by employing their onboard weapons. Recovery helicopter gunners must be thoroughly briefed on weapons conditions and the RESCORT location. Gunners should not engage targets beyond the RESCORT aircraft due to the probability of placing the RESCORT in a crossfire situation. **Typical RESCORT tasks may include:**

- **Suppressing surface threats** to, from, and within the objective area.
- **Assisting recovery helicopters** in locating and authenticating isolated personnel.
- **Functioning as the OSC** when designated by the JSRC, RCC, or AMC and coordinating and controlling activities of supporting CSARTF elements in the objective area.

c. **RESCORT Ordnance Delivery. The recovery helicopter is vulnerable to threats ahead of its route of flight** due to a lack of forward firing suppressive weapons. **Helicopters are also extremely vulnerable to friendly fire.** Strafe fans and bomb fragmentation patterns must be determined before employing ordnance near the helicopter. CSARTF members should coordinate on engagement distances from the helicopter (i.e., helicopters engage from 0 to xxx meters, fixed-wing aircraft outside of xxx meters). One method to ensure deconfliction is for the helicopter to call the direction of break away from the engaging threat (e.g., "Rescue lead, breaking right, small arms").

Escort tactics used will depend on factors such as speed, altitude, distance, fuel, level of threat, weather conditions, terrain, and day or night operations.

If a recovery force is engaged, the primary emphasis should be to disengage with minimum damage or loss. After the initial evasive break, the recovery helicopters should disperse, using terrain-masking techniques, and evade away from the threat while attempting to maintain flight integrity. As the recovery helicopters execute their evasive maneuvers, RESCORT should maneuver to engage the threat. If practical, a RESCORT element should continue to escort the recovery helicopters during evasive maneuvers until the recovery force is clear of known threats. When the recovery force is out of the threat envelope, RESCORT should disengage and rendezvous with the recovery force.

8. Types of RESCORT

Several escort methods may be used during the en route phase, but the tactics used will depend on factors such as speed, altitude, distance, fuel, level of threat (no, low, medium, and high), weather conditions, terrain, and whether day or night operations are planned. **Escort can be either attached or detached**, as discussed below. Advantages and disadvantages of each are shown in Figure V-3.

a. **Attached Escort.** This method allows continuous visual or radar contact of the recovery platform.

b. **Detached Escort.** This method includes route reconnaissance ahead of the recovery assets, trail escort, and proximity escort. Detached escort requires knowledge of routes and planned timing or position calls.

- **Route Reconnaissance and/or Sanitization and Preemptive Sweep (Detached Escort).** Route reconnaissance and sanitization should be conducted when deemed necessary by any member of the CSARTF. **The AMC or OSC may conduct a search and direct a route sanitization or change in routing.** The RESCORT aircraft flies ahead of the recovery helicopter to suppress threats along the ingress route, or redirect recovery helicopters to avoid enemy activity. **The RESCORT should detect and neutralize threats or direct a routing change.** Route reconnaissance and sanitization techniques should be thoroughly planned and briefed.

- **Trail Escort (Detached Escort). Trail escort employs RESCORT in a rear quadrant following the recovery helicopter route.** As the recovery aircraft progresses along the ingress route, the escort force follows. The RESCORT aircraft maintains course position by a series of turns at low altitude or orbits at high altitude. Low-altitude escort should be low enough to avoid detection and engagement while maintaining the advantage of surprise against air and ground threats. In trail escort, **the recovery helicopter and RESCORT must maintain situational awareness and communications capabilities** to ensure flight and weapons safety. This should be done by using established orbit points and definitive transition points to ensure adequate vertical and horizontal airspace deconfliction. Situational awareness can be further enhanced by succinct communications and code word procedural guidance, the proper display of transponder IFF mode 1 or 3 squawks with AWACS or other similarly equipped assets, and the timely relay of mission-essential information.

- **Trail escort provides flexibility for escorting a recovery helicopter already en route**, or executing a "scramble" scenario. The only requirement is that the RESCORT and recovery asset both know the initial or rendezvous point. This should be a prominent geographic landmark or

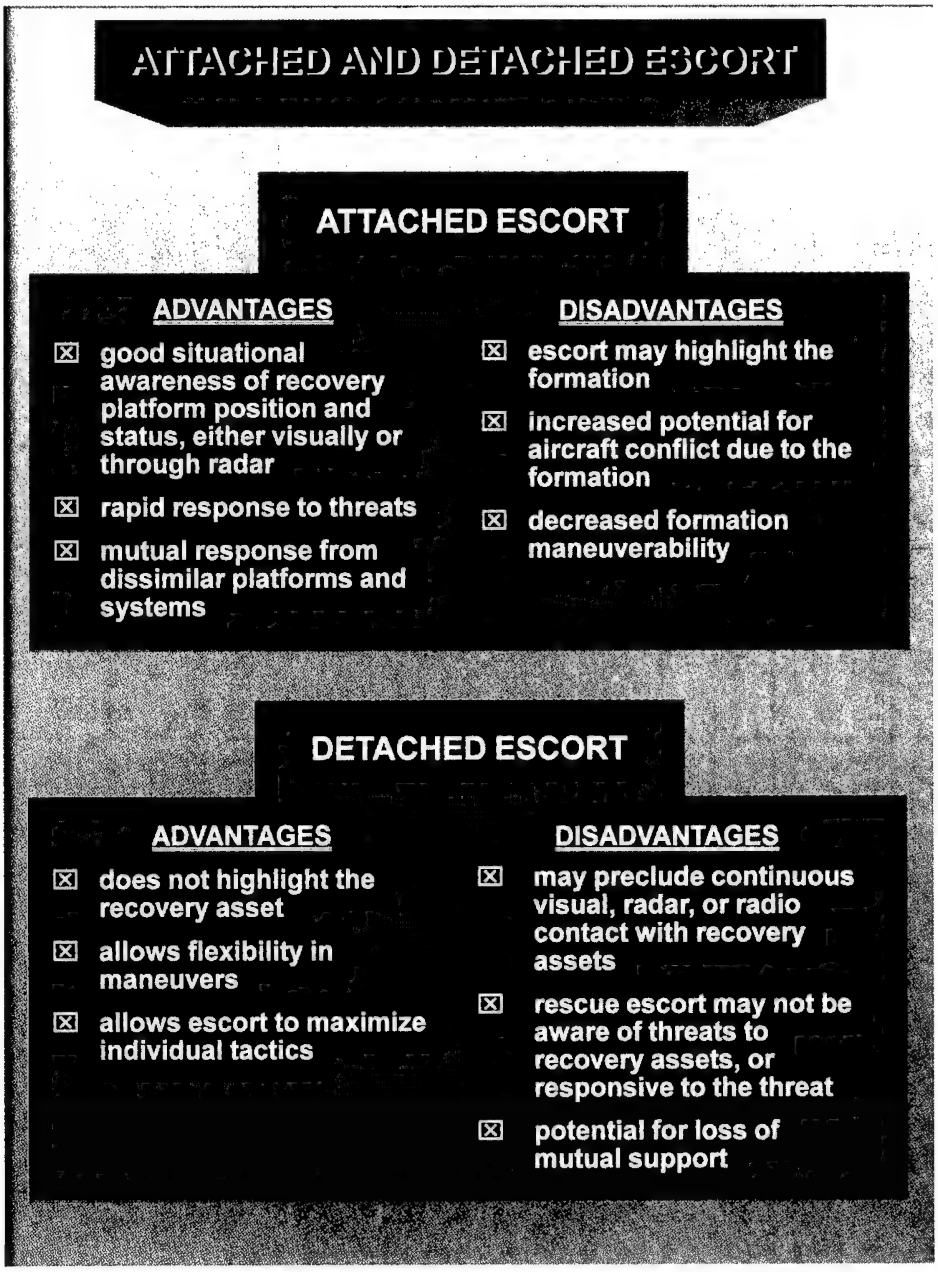

Figure V-3. Attached and Detached Escort

reference, grid coordinates, or a latitude and longitude position. The recovery asset could then provide the route checkpoint name, bearing, and distance to each point. An example would be "ALPHA, 360/10 NM, BRAVO 092/07 NM." **An advantage of trail escort** is that the recovery asset and RESCORT use common navigational checkpoints and route information. A **disadvantage** is that the trail RESCORT element uses the same route and may be more vulnerable to air or surface engagement.

- **Trail escort can only be used effectively with one recovery helicopter group.** If there are two or more helicopter elements or flights are spaced 5 or more miles apart, the RESCORT can provide effective support to only the trailing recovery helicopter or group.

- **Proximity Escort.** Proximity escort is similar to trail, with the exception that **the RESCORT does not fly the same navigation route as the recovery asset**. By using prominent navigation points, the RESCORT has the flexibility to maximize internal flight techniques and tactics, while remaining sufficiently close to be responsive to the recovery helicopter. This provides for **increased survivability from surface and air engagement and a decreased probability of detection for both groups** while still providing quick reaction times. The same navigation, code words, and checkpoint communications used in other RESCORT methods apply. The recovery asset should provide thoroughly coordinated, precisely timed radio calls and routing progress to the RESCORT to permit repositioning. RESCORT can also be employed from high altitude, beyond visual range, maintaining situational awareness through radio and radar. Either method may create a less responsive engagement of threats by RESCORT forces. The RESCORT flight paths should utilize tactical holding points within ordnance delivery distance (1 minute maximum flight time) of the helicopter flight route. While proceeding from holding point to holding point, **the RESCORT route may include flight ahead of and parallel to the recovery helicopter flight route**. A disadvantage of this RESCORT method is the difficulty in acquiring the recovery helicopter while between checkpoints. Air-to-air tactical air navigation, radar, or visual reference calls by the recovery helicopter can assist the RESCORT in acquiring the recovery helicopter.

9. RESCORT by Fixed-Wing Aircraft

The AMC should request a minimum of two flights of fixed-wing RESCORT aircraft to suppress possible weapons fire near the isolated personnel. If hostile fire is present, more aircraft may be required. Past experience has shown that a FAC(A) can control one flight of four aircraft every 10 minutes. Fixed-wing aircraft that may be used for the RESCORT mission are described in Appendix G of this publication, "CSAR-Capable Assets."

a. Advantages and disadvantages of fighter or other armed, fixed-wing aircraft use for RESCORT (as compared to rotary-wing escort) are listed in Figure V-4.

b. **Fixed-Wing Rendezvous with Recovery Forces.** Rendezvous should be planned for an area that is **easily defined by geographic references** and is in a **permissive threat environment**. Friendly radar sites may be capable of assisting rendezvous by identifying and vectoring the aircraft. Onboard navigation equipment may provide the required accuracy in the absence of a geographic reference and will enable rendezvous without radio communication or emissions. Altitude and horizontal separation should be briefed and maintained during the rendezvous.

c. **Close Escort Patterns. Close escort is used when fixed-wing protection of recovery helicopters is required.** The primary RESCORT pattern used, either during the day or at night with NVDs, should be the **Daisy Chain**. The **S-Weave** pattern should be used for slower speed, fixed-wing RESCORT (A-10), and the **Racetrack**

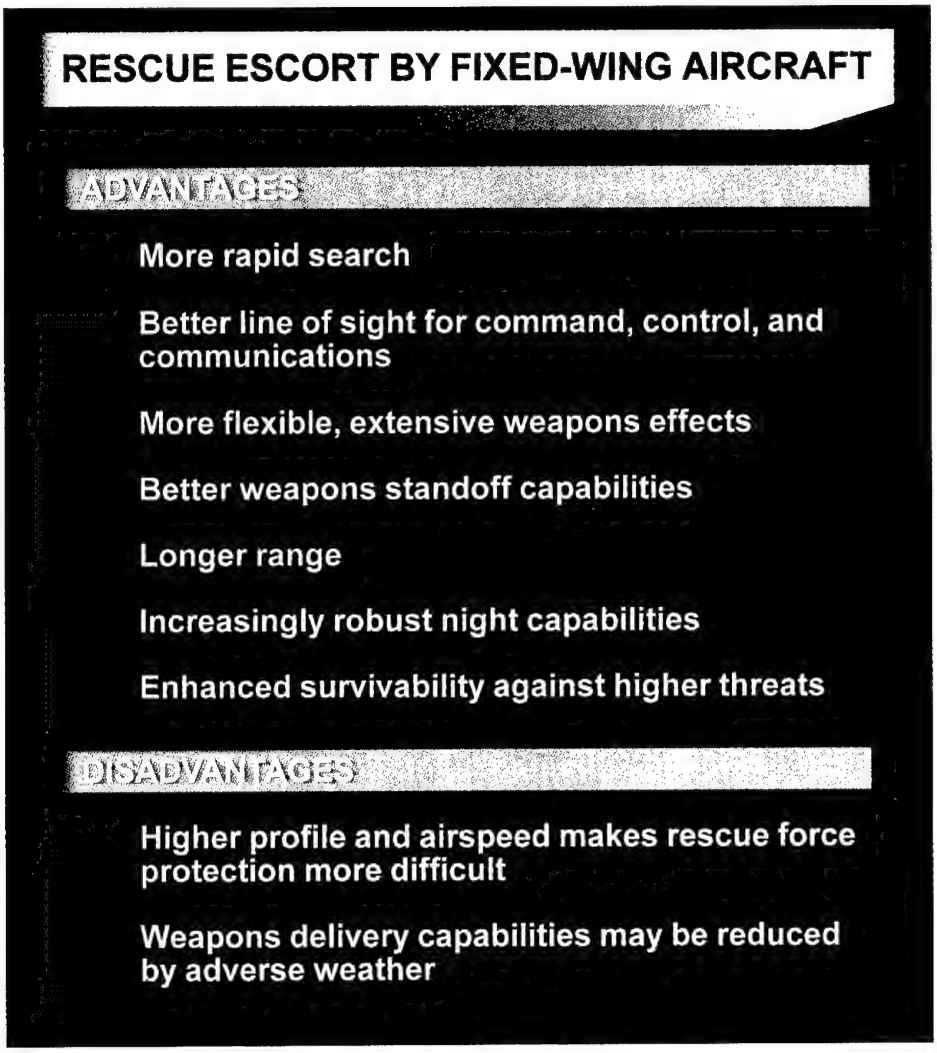

Figure V-4. Rescue Escort by Fixed-Wing Aircraft

pattern used for fast-moving RESCORT aircraft. The **Figure Eight** pattern can be employed by slower moving fixed-wing aircraft, but is usually more effective with helicopters. Nearly all patterns are derived from the basic box pattern shown in Figure V-5.

- **Daisy Chain.** The two- or three-ship Daisy Chain is the preferred non-NVG A-10 RESCORT pattern, but may be unsuitable for fast moving aircraft. The Daisy Chain is essentially a wheel pattern applied to a moving target (See Figure V-6).

•• **Advantages of the Daisy Chain.** (1) Navigation is easier because RESCORT flight path parallels and then crosses the recovery helicopter's flight path. (2) Maintaining visual contact with the recovery helicopter is easier because it is at the center of the moving wheel. (3) The RESCORT aircraft maintain sight of the helicopter. (4) The RESCORT aircraft never aim forward-firing munitions through the helicopter's position. (5) Transition to hover cover for the extraction and back to the Daisy Chain for egress is relatively simple. (6)

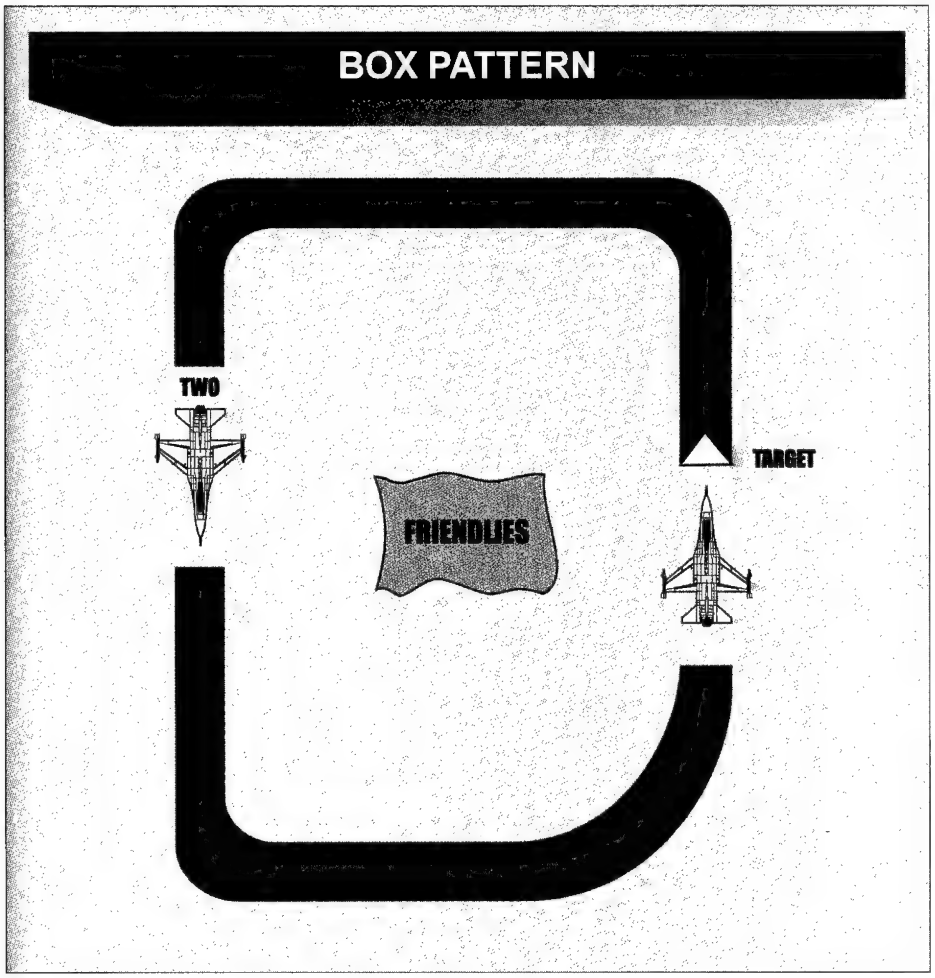

Figure V-5. Box Pattern

Adjustment of a RESCORT turn for weapons employment is easier when the recovery helicopter breaks away from threat if engaged.

•• **Disadvantage of the Daisy Chain.** Continuous RESCORT coverage is difficult to maintain.

- **S-Weave.** The S-Weave represents a second choice for RESCORT with two aircraft (See Figure V-7). The geometry of the pattern makes navigation and helicopter protection more difficult than the Daisy Chain. The flight has the option to have both aircraft weave behind the rescue vehicle. The speed of the helicopter determines the angle to cut across the helicopter's route of flight.

•• **Advantage of the S-Weave.** Good 6 o'clock and side coverage of the recovery helicopter.

•• **Disadvantages of the S-Weave.** (1) It is a difficult formation to reestablish if the helicopter breaks due to threat engagement. (2) It is difficult to transition into or out of hover cover. (3) RESCORT pilot tasking is extremely high.

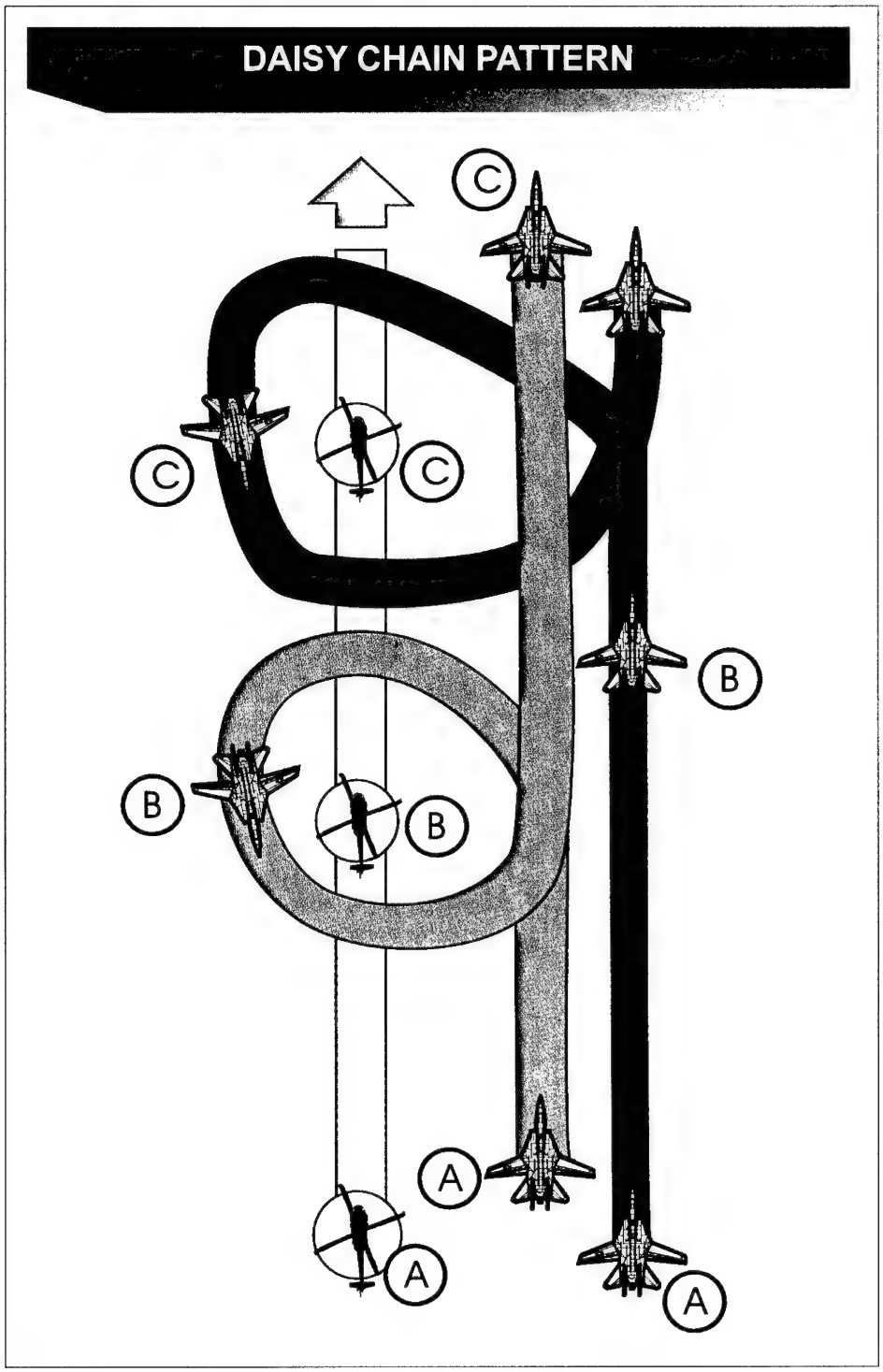

Figure V-6. Daisy Chain Pattern

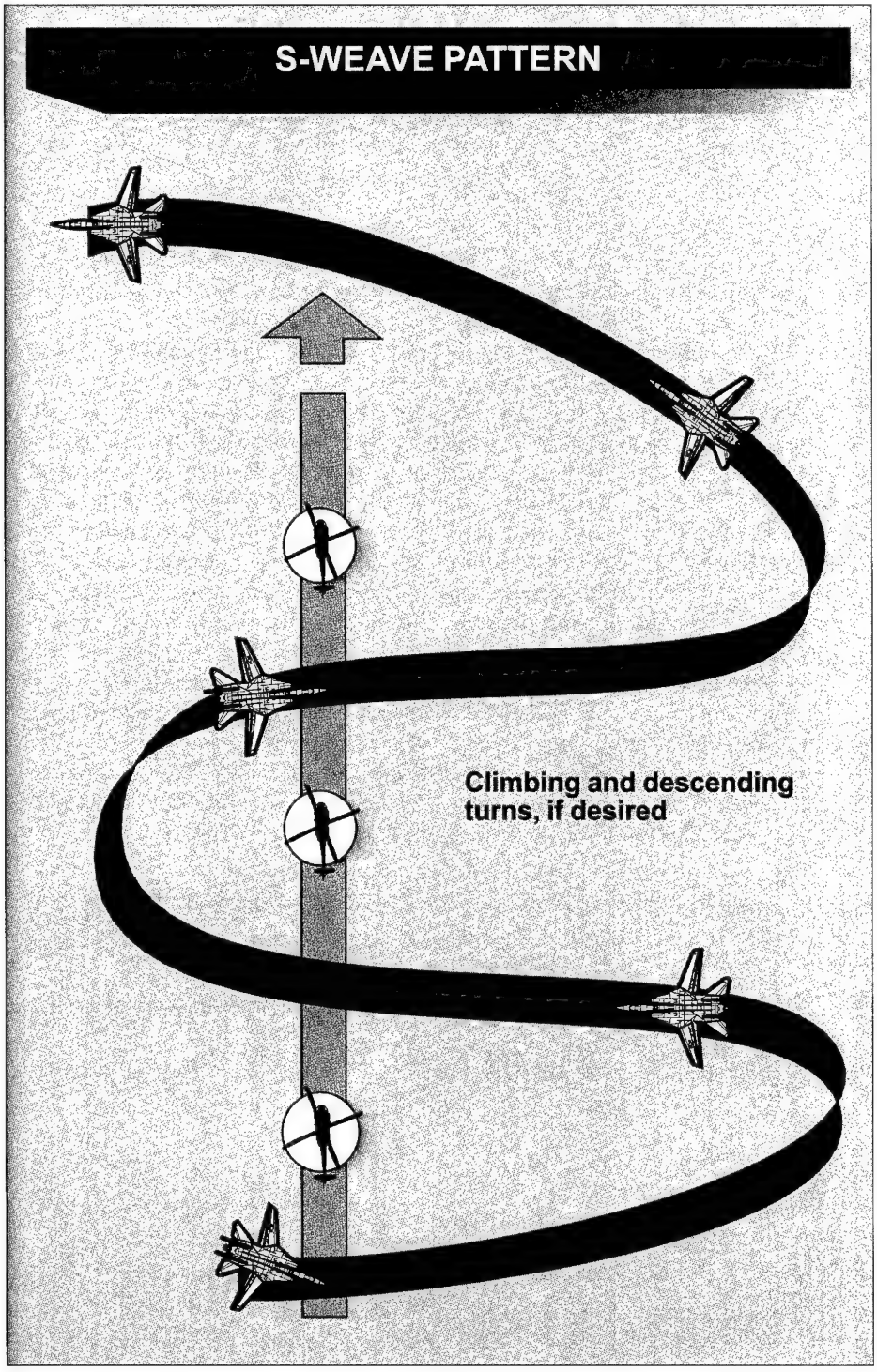

Figure V-7. S-Weave Pattern

- **Figure Eight Pattern.** The Figure Eight pattern is designed for 360 degree attack capability. Although providing good mutual support, this pattern requires slower than optimum airspeeds for fixed-wing escort aircraft. The pattern is designed to allow the helicopters to proceed in front of the RESCORT following each firing pass. If the escort aircraft find themselves in front of the helicopters, either because of the helicopter airspeed or a desire by the RESCORT to increase their airspeed, a series of cross-turns can be used to reposition the RESCORT flight in trail.

- **Racetrack Pattern.** The Racetrack pattern is designed for higher airspeed RESCORT. This formation requires more coordination and response time to position suppression aircraft than the Figure Eight pattern. The Racetrack pattern can be oriented and flown parallel or perpendicular to the recovery platform's axis of advance. If flown perpendicular, RESCORT will trail the helicopter and can minimize time spent out of weapon's engagement position by ensuring that one RESCORT is always pointed towards the helicopter's route (See Figure V-8).

10. Helicopter Gunship RESCORT

Armament, speed, range, and defensive countermeasure systems are critical factors in the assignment of a RESCORT mission. Armed helicopters are highly maneuverable, provide minimum detection, provide suppressive fire capability, and possess good objective area endurance time. The attack helicopter's most critical limitation is its lack of airspeed. The recovery force may need arbitrary airspeed limit while en route to facilitate the RESCORT operations. Utility and assault helicopter airspeeds may be greatly degraded when helicopters are downed aviator system and/or external stores support system configured. **Fully configured, the armed helicopter may be unable to maintain airspeed parity with escorted helicopters of the same type.** When combined with an attack helicopter as a RESCORT element, the armed helicopter may have a detrimental effect on total RESCORT capability.

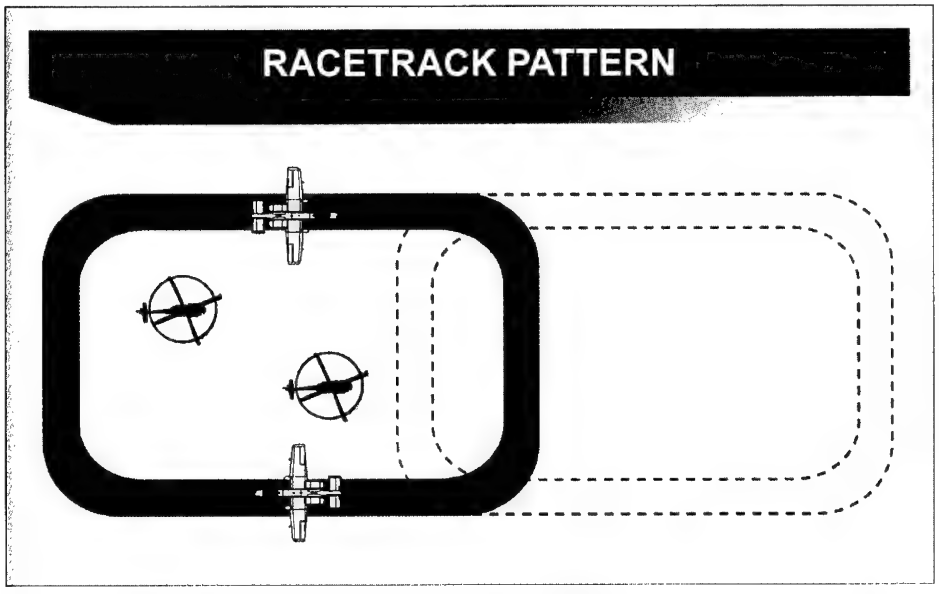

Figure V-8. Racetrack Pattern

Helicopter assets typically employed for this mission are described in Appendix G of this publication, "CSAR-Capable Assets."

The **advantages and disadvantages** of helicopter rescue escort assets are listed in Figure V-9.

11. Helicopter RESCORT Tactics

Recovery formations may be escorted by attack helicopters. Attack helicopter formations should adjust their speed and altitude, and should use terrain masking to avoid visual or electronic detection. **All RESCORT formation positions are derivations of the basic box pattern**, previously shown, which provides 360 degrees of weapons overlap coverage. This is a viable formation in a permissive environment, a terrain flight regime, or over flat, open areas. RESCORT should cross the flight during recovery force turns and maintain clearance from the recovery helicopters and the flight route. Attack

Figure V-9. Helicopter Rescue Escort

helicopters may best secure an LZ by overwatching the area from a stationary position over key terrain.

- **Helicopter rescue escort patterns** are listed in Figure V-10 and described below:

  •• **Racetrack Pattern.** The Racetrack pattern is the basic escort pattern. It can be used for en route fire support, LZ preparation, or suppression.

  •• **Cloverleaf Pattern.** The Cloverleaf pattern may be employed during suppressive fire missions against point or area targets. The number of cloverleaf leaves will vary with the threat scenario and mutual support requirements.

  •• **45-degree Attack.** The 45-degree attack is most effective when only one target attack is planned, or when used to disengage from a hostile fire area. It can be used en route or during initial suppression attacks. Flexible guns are used by both aircraft for mutual cover. Generally, the wingman can accurately fire rockets on the target within 2 to 3 seconds after lead commences fire.

  •• **L-Pattern.** The L-pattern is the most effective pattern against targets requiring a large volume of short duration fire. This pattern can be used to attack linear targets or targets masked on one side by terrain. If a large volume of fire is not required, proper timing permits one helicopter at a time to employ suppressive fire for sustained periods. The pattern can also be used during terminal phases of multiple ingress route recoveries.

  •• **Circular Pattern.** The Circular pattern is most effectively employed in a left or right orbit around the target, with the RESCORT helicopters equally spaced around the circle. Altitude and orbit diameter should vary as required so the attack helicopters can roll in at the proper dive angle to attack the target.

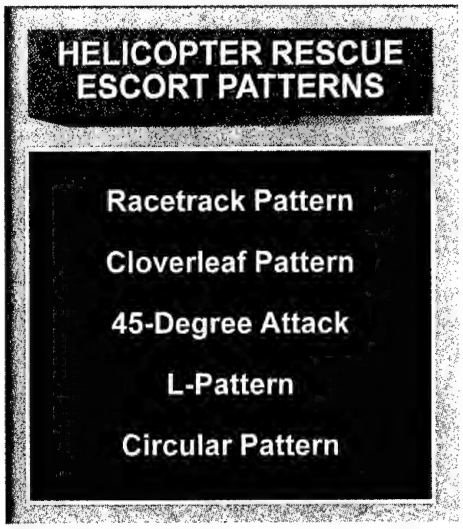

Figure V-10. Helicopter Rescue Escort Patterns

12. Hover Cover

During the extraction phase or when the recovery helicopter enters a hover for a mission hold, **RESCORT procedures should be modified to provide maximum suppressive coverage during this period of vulnerability**. A critical consideration during any hover cover operation is the potential for highlighting the helicopter or the extraction zone. Therefore, **RESCORT aircraft should avoid premature entry into a hover cover pattern**. When hovering or moving at very slow forward speeds, helicopter maneuverability, power requirements, and defensive ordnance delivery azimuths are severely degraded. Indirect hover fire may be delivered from firing points obscured from the enemy. RESCORT aircraft may be required to move frequently to other firing points to limit the effectiveness of enemy counterbattery fire. The three primary options for RESCORT hover cover are the Wheel,

Cloverleaf, and High-Hold. The advantages and disadvantages to these three options are listed in Figure V-11. Armed helicopters providing hover cover can also provide substantial suppressive fire in the objective area by employing the Figure Eight pattern (See Figure V-12). Attack helicopters may best secure an LZ by overwatching the area from a stationary position over key terrain.

a. **Wheel.** The Wheel is the most commonly used option for low airspeed RESCORT aircraft. The wheel may employ two aircraft (two-ship) or three aircraft (three-ship). The three-ship option is generally more effective for hover cover operations (This formation is depicted in Figure V-13). The Wheel formation provides the required flexibility to effectively protect the helicopter. RESCORT lateral spacing from the helicopter should be varied to establish the maneuvering space required to rapidly employ suppressive ordnance.

b. **Cloverleaf.** A second RESCORT option is the Cloverleaf as depicted in Figure V-14. The Cloverleaf is similar to the wheel except the RESCORT aircraft establishes a heading for a suppressive attack pass continuously around the helicopter.

c. **High-Hold.** High-Hold entails the fixed-wing escort climbing out of small arms or IR SAM range and holding over the LZ. RESCORT aircraft should be prepared to suppress enemy fire in the LZ with 5 seconds' notification. SEAD aircraft support will normally be required, while air-to-air support can be accomplished by the RESCORT if RESCAP is unavailable.

13. Night Vision Goggle and/or Device Escort

NVDs (to include NVGs) significantly increase night mission performance at low-level terrain flight altitudes. NVGs may be used to locate personnel, such as downed air crews, on the ground. A number of NVG versions are currently in use by different Service and functional components, but all provide a narrow, limited field of view. Similarly, **the capabilities and compatibility of other types of NVDs vary widely**, but all can enhance night RESCORT operations when properly employed. **The CSARTF mission commander must consider NVD diversity** and ensure that CSARTF element goggle and de-goggle procedures are incorporated during mission planning. These procedures should be executed at a planned point or time, and only in permissive environments. If improperly briefed or executed, both mission safety and success may be jeopardized.

a. **NVD Helicopter Formations.** As ambient light levels and visibility are reduced, **formations should divide into smaller elements, reduce separation, reduce airspeed, and descend to lower altitudes.** In low-light levels or reduced visibility, airspeeds may have to be reduced to 90 knots or less. This reduction should enable RESCORT aircraft to maintain the airspeed advantage needed for threat reaction.

b. **Additional Considerations**

- **NVD aircrew proficiency, experience, and training.**

- **Use of covert external lighting** such as IR position filters, search light filters, signaling lights, or chemical light sticks may facilitate ease of observation by wingmen or RESCORT. **Various lighting schemes may aid in aircraft identification** (e.g., aircraft configured with IR position lights indicate recovery helicopter, and aircraft with IR chemical light sticks indicate RESCORT). **In communication-restricted environments, the ability of a**

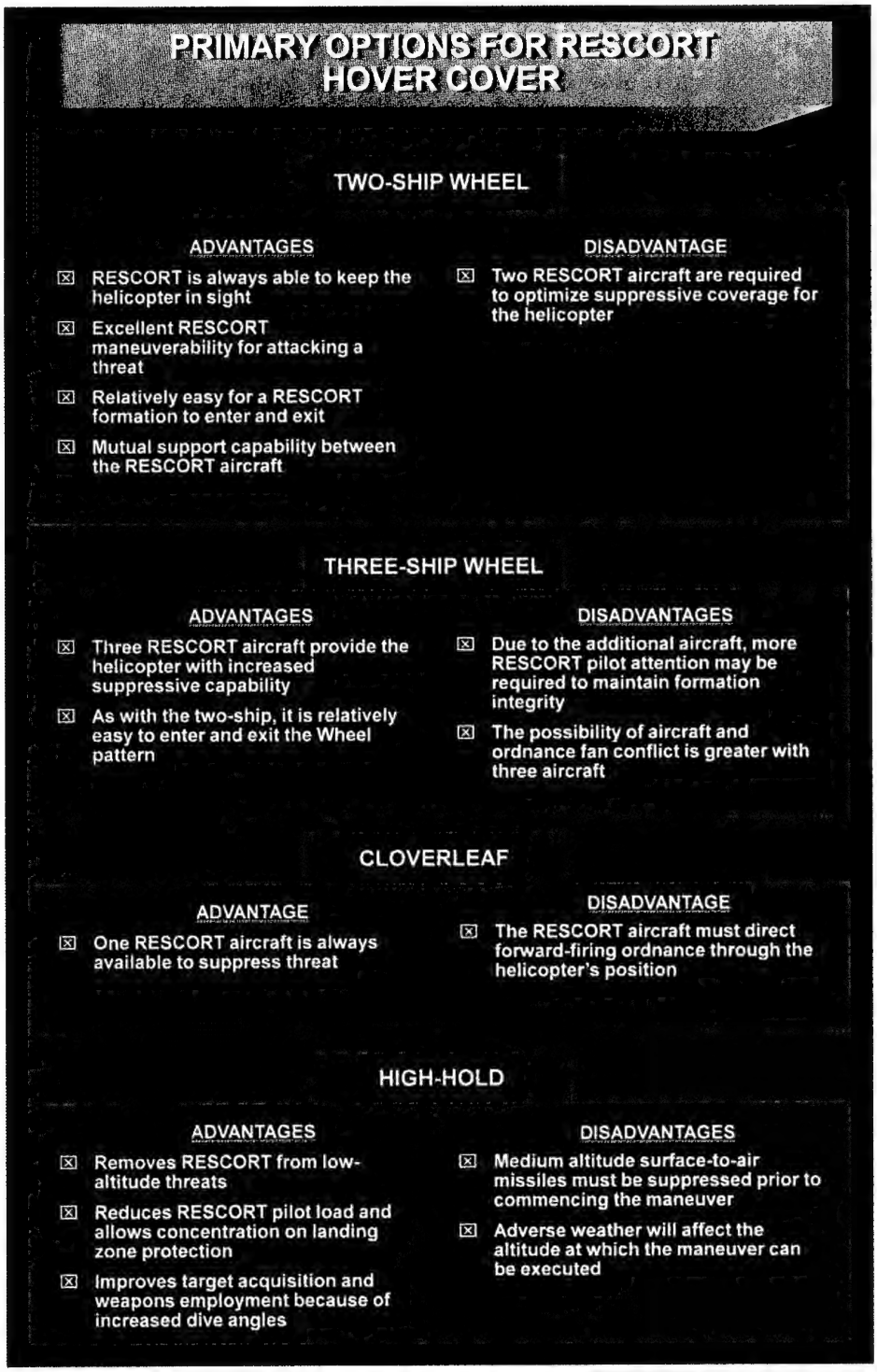

Figure V-11. Primary Options for RESCORT Hover Cover

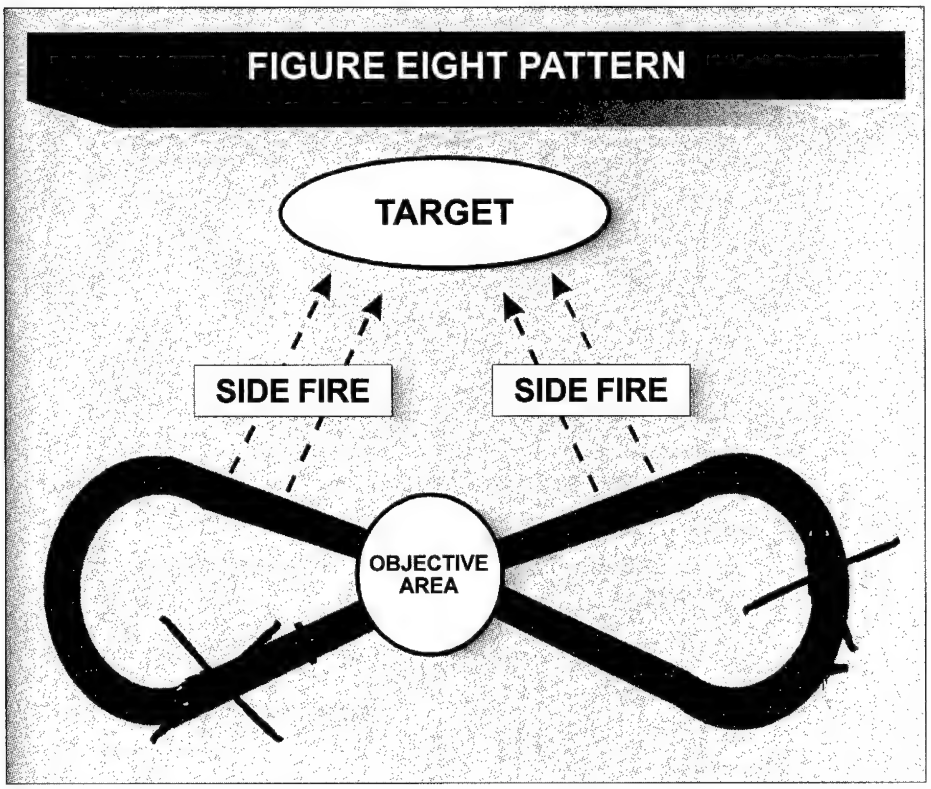

Figure V-12. Figure Eight Pattern

formation to communicate with visual signals using aircraft and/or hand-held lighting **becomes especially critical**.

- Aircraft not equipped with IR lights should consider **covering the upper portion of lower position lights** and **the lower portion of upper position lights with tape**. Covering the lower half of the position lights may aid wingmen and RESCORT in maintaining visual contact with the flight while decreasing the likelihood of ground observation. Covering the upper half of the light could aid aircrew when landing in holding areas, FARPs, and LZs on nights with low ambient light conditions. This technique also reduces the likelihood of blinding a wingman's NVGs should external aircraft lighting be desired when landing. **"Cateyeing" aircraft tail position lights** (taping both the upper and lower portions of the light while leaving only a very slight horizontal opening between the strips) also reduces the likelihood of blinding a wingman with NVGs.

- **Covert or limited visibility lighting may be used.** On helicopters equipped with a rotor headlight, the lighting may be used to establish visual contact, aircraft identification, or serve as a signaling device.

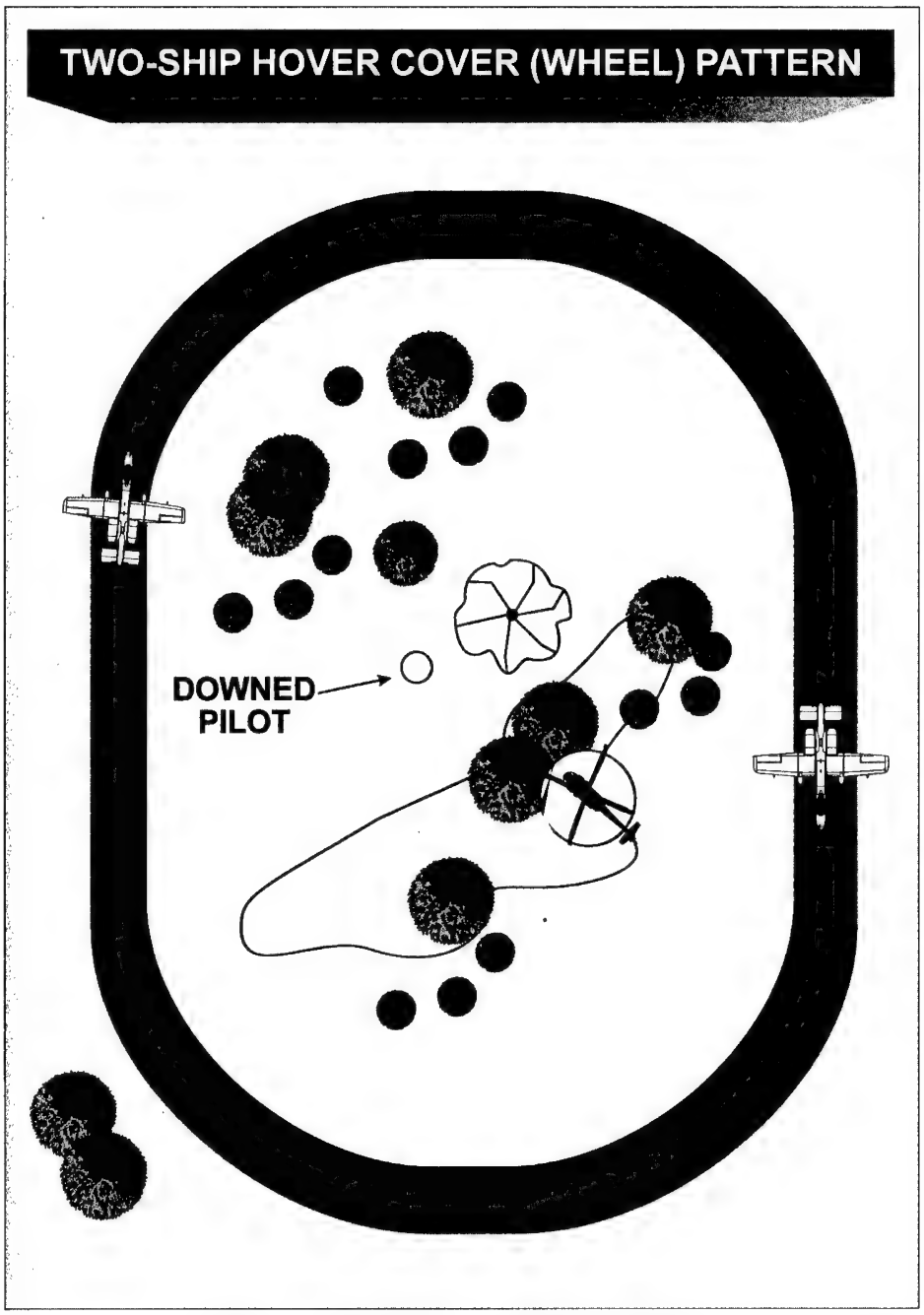

Figure V-13. Two-Ship Hover Cover (Wheel) Pattern

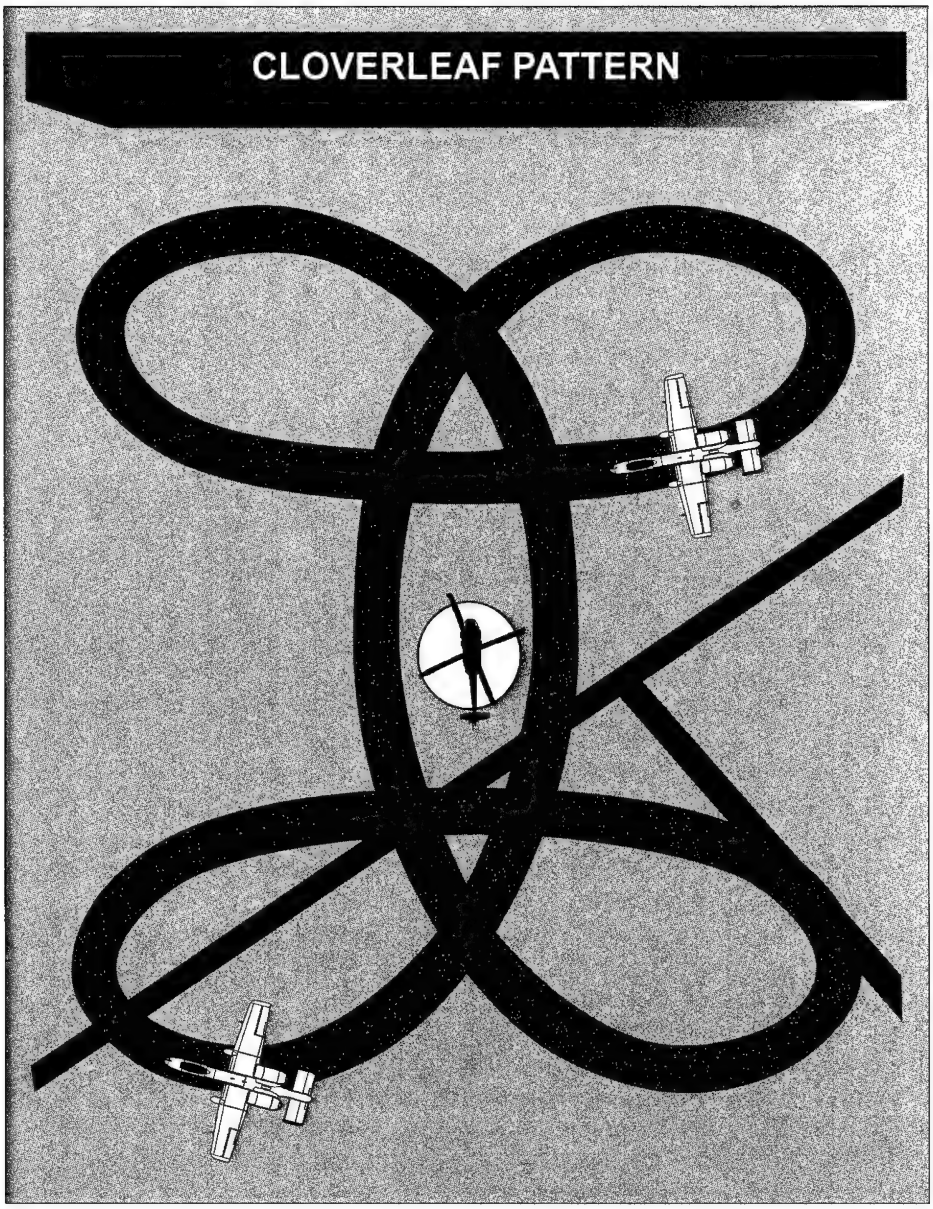

Figure V-14. Cloverleaf Pattern

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APPENDIX A
AIRBORNE MISSION COMMANDER CSAR CHECKLIST

CSAR INFORMATION

SAR A: _____ SAR B: _____

CSAR PRIMARY: _____ CSAR SECONDARY: _____

SAR BULLSEYE: _____ ELEVATION: _____

SAR CODE WORD: _____ NUMBER: _____ LETTER: _____

CHECKLIST

1. DOWNED A/C: _____ NOTIFIED BY: _____ TIME: _____

2. NOTIFY RCC. RELAY FOLLOWING INFORMATION AS AVAILABLE:

   A. C/S OF DOWNED A/C: _____

   B. TYPE A/C/SOULS ON BOARD/# CHUTES: _____

   C. LOCATION OF SURVIVOR(S)/QUALIFIER (GPS, ESTIMATED, LAST KNOWN, GROUND, WATER): _____

   D. PHYSICAL STATUS OF SURVIVOR(S): _____

   E. OSC C/S/FUEL STATE/LOAD OUT: _____

   F. AUTHENTICATION STATUS: _____

   G. CAUSE OF LOSS/TIME/NOTIFIED BY: _____

   H. WEATHER/TERRAIN: _____

   I. THREATS (GROUND/AIR): _____

   J. ASSETS AVAIL IN AREA: _____

   K. RECOMMENDED SPIDER ROUTE: _____

3. ASSUME TACTICAL CONTROL.

4. DESIGNATE OSC (AIR-TO-GROUND ORDNANCE IF AVAILABLE). PUSH TO CSAR PRIMARY AND SURVIVOR'S FREQ.

5. REQUEST ALERT OR SUPPORT FORCES IF REQUIRED.

6. ESTABLISH COMM WITH CSARTF ON CSAR PRIMARY. CONTROL RADIO DISCIPLINE.

OSC(RMC):	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
FAC (A):	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
RESCORT:	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
RESCAP:	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
SEAD:	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
CAS:	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
HELO:	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
ELINT:	_____	NUMBER/TYPE A/C:	_____	STATION:	_____
TANKER:	_____	NUMBER/TYPE A/C:	_____	STATION:	_____

APPENDIX B
ON-SCENE COMMANDER CHECKLIST

1. __ AUTHENTICATION

    a. __ Authenticate.
    b. __ Number of isolated personnel.
    c. __ Establish order of communication.
    d. __ Determine injuries.
    e. __ Determine enemy activity.
    f. __ Check all assets on station time, ordnance, and other relevant factors.

2. __ LOCATION

    a. __ Attempt location via electronic means (PRC-112, GPS and/or chart position passed over radio by survivor, high-speed DF).
    b. __ Determine signal devices.
    c. __ Request general terrain description.
    d. __ Request isolated personnel give vectors to their position.
    e. __ Locate isolated personnel position within 1 NM.

3. __ SANITIZATION

    a. __ Neutralize threats detrimental to rescue.
    b. __ Note all other enemy positions.
    c. __ Determine ingress and egress routes.

4. __ RECOVERY

    a. __ Brief helicopter and remainder of CSARTF on:

        (1) Number and condition of isolated personnel.
        (2) Distance to isolated personnel from initial point.
        (3) Describe terrain.
        (4) Isolated personnel location.
        (5) Elevation of recovery area.
        (6) Wind speed and direction.
        (7) Describe isolated personnel signal devices.
        (8) Known or suspected enemy activity.
        (9) Describe ingress and egress routes.
        (10) Emergency safe landing area.

b. __ Direct isolated personnel to:

(1) Prepare signaling devices for use and/or ignition, but use only as prebriefed or when directed by authenticated rescue forces.
(2) Call threatening enemy positions.
(3) Vector helicopter if necessary.
(4) Approach the helicopter only when directed by the recovery force and follow their instructions.

APPENDIX C
CSAR COMMUNICATIONS PLANNING CHECKLIST

OBJECTIVE: Develop a simple plan for who should talk, when, and on what frequency.

Step 1. ___ Ground Operations:

a. ___ Start frequency (air-to-ground, air-to-air, AWACS, E-2C, or rescue common).
b. ___ Passing and/or obtaining "Mickey" (Have Quick-equipped only).
c. ___ Check-in frequency (normal, Have Quick, or KY-58).
d. ___ Taxi communications and/or flow.
e. ___ Departure clearances.

Step 2. ___ Takeoff and/or Departure:

a. ___ Takeoff clearances.
b. ___ Departure communications/flow.

Step 3. ___ En route, Rendezvous, and/or Ingress:

a. ___ Frequency switching points.
b. ___ Comm and/or freq for AWACS and/or GCI (Have Quick), E-2C, number of frequencies).
c. ___ Comm and/or freq for tanker.
d. ___ Comm and/or freq for other CSARTF support assets (late takeoffs, slips).
e. ___ Codewords (push, slip, abort).
f. ___ Comm-out signals.
g. ___ Have Quick and/or KY-58 usage (Mickeys, nets, fills).

Step 4. ___ Pick-up Area:

a. ___ Frequency switching points.
b. ___ Comm and/or freq for AWACS and/or GCI, E-2C, (amount and type of information, terminology).
c. ___ Comm and/or freq for CSARTF assets (essential elements of information).
d. ___ Comm and/or Data link between support assets.
e. ___ Codewords (alternate target, off target, reattack).
f. ___ Chattermark procedures.
g. ___ Range and/or line of sight between support assets and packages.
h. ___ Have Quick and/or KY-58 usage (HQ1 versus HQ2, nets, fills).
i. ___ Beacon information.
j. ___ Call signs and other identification techniques.

Step 5. ___ Egress:

a. ___ Frequency switching points.
b. ___ Comm and/or freq for AWACS/GCI, E-2C.
c. ___ Comm and/or freq for tanker.
d. ___ Codewords (egress, battle damage).
e. ___ Passing inflight reports (HQ and/or KY-58, type information).

Step 6. ___ Formulate Back-up Plans:

a. ___ Passing and/or obtaining "Mickey" (ground vs. airborne, AWACS, E-2C, updates).
b. ___ No Have Quick and/or KY-58.
c. ___ Fallout of CSARTF assets.
d. ___ No communications with AWACS and/or GCI, E-2C.
e. ___ No communications between AWACS, CSARTF, and E-2C assets.

Step 7. ___ Stress communications discipline and incorporate minimum communications and/or radio silent procedures as required.

APPENDIX D
ISOPREP DATA COLLECTION CHECKLIST AND PROCEDURES

1. ___ Receive shoot-down and/or ISOPREP.

2. ___ Determine and/or plot location on order of battle.

   a. Current forward line of own troops (FLOT).

   b. Current ongoing conventional force operations of available CSAR assets.

   c. Current ongoing friendly force operations and SOF activities behind enemy lines.

3. ___ Provide initial threat assessment to JSRC staff.

4. ___ Collect mission information from operational controller.

   a. Mission number;
   b. Call sign;
   c. Number and type aircraft;
   d. Crew complement;
   e. Unit of assignment;

5. ___ Obtain ISOPREP and/or EPA data from the unit via secure voice or FAX.

6. ___ Report ISOPREP and EPA data to the tasked rescue unit.

7. <u>USE OF THE ISOPREP</u>

   a. Upon notification that a member of the unit is missing or isolated in hostile territory, the unit will forward the individual's ISOPREP data to the appropriate RCC by the fastest secure means available. Information passed telephonically will be followed up by message. The RCC will disseminate ISOPREP data to other authorized agencies including allied forces, if practical, to assist in the recovery effort.

   b. Upon notification that recovery operations have been unsuccessful or terminated, appropriate entries will be made on ISOPREP and the information filed. Once the recovery mission is complete and the JFC no longer has a requirement to maintain the files, copies of all items will be forwarded to the JSSA. The files will not be destroyed.

   c. If death is the result of a mishap or disaster, the DD Form 1833 will not be destroyed until positive identification of remains has been made. Should a mishap investigation team and/or board request the release of the ISOPREP to assist in the

identification of the remains of victims, the ISOPREP will be declassified and accountability transferred to a senior member of the investigation team and/or board. The ISOPREP will become an official document in the identification file.

8. COMPLETING THE ISOPREP. Personnel will complete the ISOPREP in ink, except for items 3, 13, 14, 20-23, and 24, which will be completed in pencil. (See Figures D-1 and D-2.)

a. Items 1 through 13, self explanatory.

b. Item 14, enter a four-digit number that can be easily remembered. This number should not be in the individual's military records or be public information.

c. Item 15, self-explanatory.

d. Items 16 through 19, to be completed by RCC personnel.

e. Items 20 through 23 require declarative statements, not questions and answers. They should involve personal details that are easily remembered and not subject to change. Details of friends, relatives (other than immediate family), pets, vehicles, vacations, and other such details would be appropriate. (For example: "My first car was a blue, 4-door, 1979 Trans Am.") Avoid references to dates, ages, or other information from the individual's military records of public information. CSAR forces will then be able to derive several questions from each statement to authenticate the individual.

f. Item 24, "Additional Data" is for local use.

g. Fingerprints and appropriate codes will be recorded in blocks 1 through 10 on the reverse of DD Form 1833. Fingerprinting will only be accomplished by qualified personnel such as Service law enforcement agencies, office of special investigations, or other trained personnel. When the theater JSRC assumes responsibility for the recovery of an individual by unconventional means, the JSRC will ensure that the individual's fingerprints are on his or her ISOPREP. Fingerprints need not be coded before forwarding ISOPREPs to JSRCs. Geographic combatant commanders will establish procedures to ensure that fingerprints are properly taken to facilitate subsequent coding.

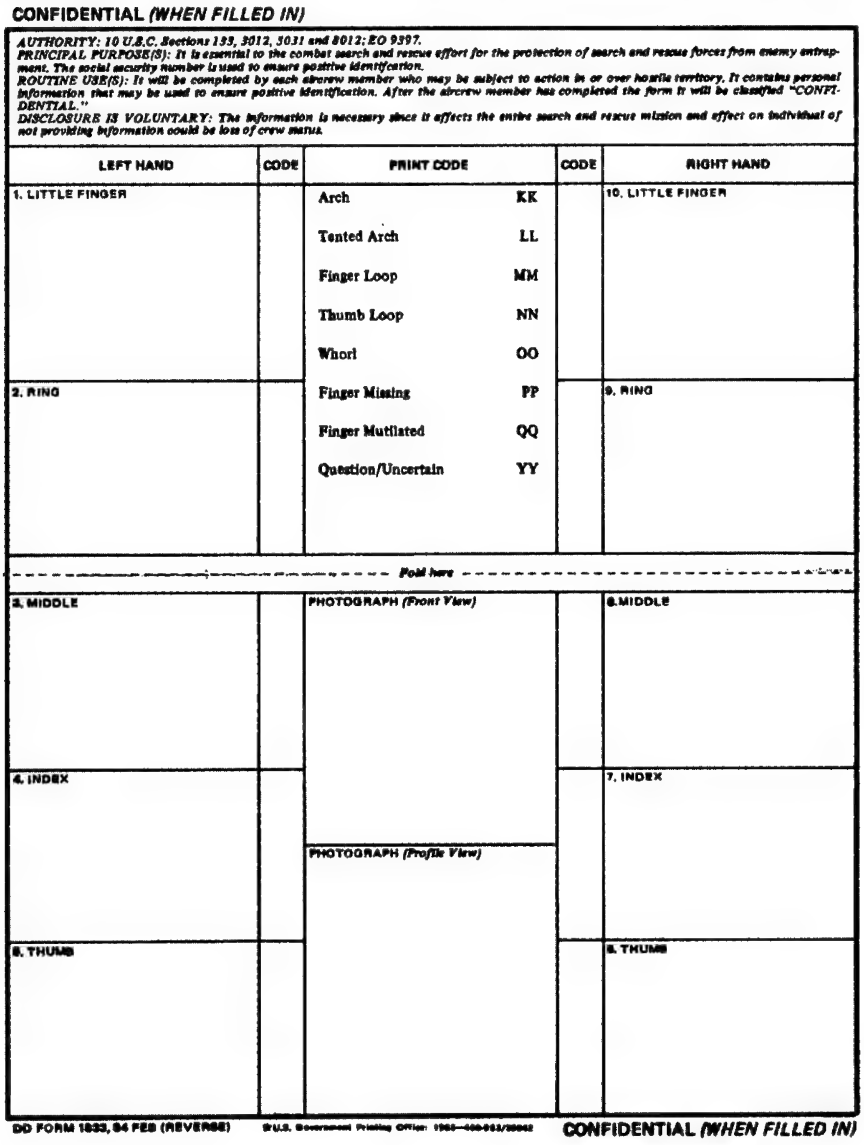
h. Provide current front and side view photographs of the individual in normal flight clothing (for Air Force, as prescribed in applicable MAJCOM supplement to AFI 36-209) and without headgear.

CONFIDENTIAL *(WHEN FILLED IN)*

ISOLATED PERSONNEL REPORT *(ISOPREP)* *(See Privacy Act Statement on reverse before completing this form)*	1. NAME *(Last, First, Middle Initial)*		2. SSN
CLASSIFIED BY: AFR 54-3, AR 525-90 NWP 19-2 *DECLASSIFY ON: OADR*	INSTRUCTIONS Items 1 through 15 and 20 through 23 are to be completed by Applicant. Items 16 through 19 and Item 24 are to be completed by RCC Personnel. All items are to be filled in INK; however, use a PENCIL for items 3, 13, 14, and 20 through 24.		3. RANK/GRADE
4. BRANCH OF SERVICE	5. NATIONALITY	6. DATE OF BIRTH *(YYMMDD)*	7. OBVIOUS MARKS *(Scar, Birthmark, Mole)*
8. BLOOD GROUP	9. HEIGHT	10. COLOR OF EYES	11. COLOR OF HAIR
12. DATE PREPARED *(YYMMDD)*	13. DATE REVIEWED *(YYMMDD)* AND CURRENT ASSIGNMENT	14. AUTHENTICATOR NO. 15. SIGNATURE	
16. DATE MISSING *(YYMMDD)*	17. LOSS POSITION	18. PRIORITY *(Holds vital information requiring priority rescue)* ☐YES ☐NO	19. SPARE
Fold here			
PERSONAL AUTHENTICATION STATEMENTS			
20.		21.	
22.		23.	
24. ADDITIONAL DATA			

DD FORM 84 FEB 1833 PREVIOUS EDITION IS OBSOLETE CONFIDENTIAL *(WHEN FILLED IN)*

Figure D-1. Isolated Personnel Report (Front)



CONFIDENTIAL *(WHEN FILLED IN)*

AUTHORITY: 10 U.S.C. Sections 133, 3012, 5031 and 8012; EO 9397.
PRINCIPAL PURPOSE(S): It is essential to the combat search and rescue effort for the protection of search and rescue forces from enemy entrapment. The social security number is used to ensure positive identification.
ROUTINE USE(S): It will be completed by each aircrew member who may be subject to action in or over hostile territory. It contains personal information that may be used to ensure positive identification. After the aircrew member has completed the form it will be classified "CONFIDENTIAL."
DISCLOSURE IS VOLUNTARY: The information is necessary since it affects the entire search and rescue mission and effect on individual of not providing information could be loss of crew status.

LEFT HAND	CODE	PRINT CODE		CODE	RIGHT HAND
1. LITTLE FINGER		Arch	KK		10. LITTLE FINGER
		Tented Arch	LL		
		Finger Loop	MM		
		Thumb Loop	NN		
		Whorl	OO		
2. RING		Finger Missing	PP		9. RING
		Finger Mutilated	QQ		
		Question/Uncertain	YY		
Fold here					
3. MIDDLE		PHOTOGRAPH *(Front View)*			8. MIDDLE
4. INDEX					7. INDEX
		PHOTOGRAPH *(Profile View)*			
5. THUMB					6. THUMB

DD FORM 1833, 84 FEB (REVERSE) U.S. Government Printing Office: 1985—480-883/20062 CONFIDENTIAL *(WHEN FILLED IN)*

Figure D-2. Isolated Personnel Report (Back)

APPENDIX E
EVASION PLAN OF ACTION FORMAT

1. Individuals completing EPAs should not use the statement "PER SAR SPINS" as a substitute for this document. Such a statement fails to provide recovery forces with the information required and provides no concrete data with which to plan a recovery operation.

2. EPAs should contain the following minimum information. Inclusion of this prescribed information into one document enhances operational effectiveness and precludes the possibility that critical information might not be available in a time-sensitive situation. These documents must be classified to at least the level of the operation order for the mission they support. Paragraphs must be individually classified to the appropriate level.

a. Identification

- Name and rank (for each crew or team member).
- Mission number, aircraft or team call sign or identifier, crew or team position, type aircraft, call sign suffix, other.

b. Planned Route of Flight, Travel, and/or Delta Points on File.

- If not on file, the route points must be described in the EPA for both ingress and egress.
- Describe inflight emergency plans for each leg of the mission.

c. Immediate Evasion Actions and/or Intentions for the First 48 Hours, Uninjured (for example):

- Hide near aircraft or parachute landing site or area of separation from team (distance and heading).
- Evade alone or link-up with crew or team (rally points).
- Travel plans (distance, duration or time, speed, and other such details).
- Intended actions and/or length of stay at initial hiding location.

d. Immediate Evasion Actions and/or Intentions, If Injured:

- Provide hiding intentions if injured.
- Provide evasion intentions if injured.
- Provide travel intentions if injured.
- Provide intended actions at hiding locations if injured.

e. Extended Evasion Actions and/or Intentions After 48 Hours.

- Destination (SAFE, mountain range, coast, border, forward edge of the battle area).
- Travel routes, plans, and/or techniques (either written and/or sketched).
- Actions and/or intentions at potential contact or recovery locations.
- Recovery and/or contact point signals, signs, and/or procedures (written out and/or sketched).

- Back-up plans, if any, for the above.

3. The following information should be completed by appropriate communications and/or signal intelligence as well as life support personnel, and attached to the EPA:

a. Communications and Authentication

- Color and/or letter of the day, month, or quarter; base time; base heading; base altitude; base number; codeword; bona fides; other (as applicable).
- Available communications and signaling devices - type and quantity of radios, quantity of batteries, type and quantity of flares, beacons, mirrors, strobe lights, other.
- Primary communication schedule, procedures, and/or frequencies (first 48 hours and after 48 hours).
- Back-up communication schedule, procedures, and/or frequencies.

b. In addition to the above minimum required information, units may wish to include the following optional information:

- Weapons and ammunition carried.
- Personal evasion kit items.
- Listing of issue survival and evasion kit items.
- Mission evasion preparation checklist.
- Signature of reviewing official.

APPENDIX F
SAMPLE AIR TASKING ORDER

1. General SPINS. SPINS which are appropriate to all participants in an exercise or joint operation are published at the beginning of an operation and remain applicable for the duration of the exercise or operation. Additional information concerning interpretation of the ATO is found in USMTF ATOCONF.

2. Mission SPINS. If required, SPINS appropriate to a specific mission (e.g., reconnaissance, CSAR, FAC) will be published. For example, the SPINS for CSAR operations will normally contain CSAR orbit points, low-level routes, radio frequencies, CSAR tactical reference points, and other specific information.

3. Daily Mission Tasking Order. This is a daily listing by mission of air activity tasked and/ or fragged in support of an exercise or operation. The daily order is normally published the day prior to the mission tasking contained in it. For CSAR operations, the daily tasking order will indicate both primary (e.g., MH/HH-53, HC-130) and support (e.g., OV-10, A-10) resources. CSAR support forces will be listed by unit. JSRC controllers and/or SARDOs must be familiar with the format and content of the ATO. The following is an example of a typical CSAR daily mission tasking order (fragmentary order).

****

AIRTASK/PACKAGE/1A//
TASKUNIT/66ARS/KLSV/MINIGUNS FLARES CHAFF//
MSNDAT/AF0100/1A/JOLLY 01/HH60G/GSAR/15M/-/-/21277//
MSNLOC/301200Z/302359Z/NELLIS/ALT:020/1234/CAHOKIA//
TGTLOC/302210Z/302220Z/BAT 21/PILOT/3620N11508W/1234/PRC112 CHANNEL ALPHA//
RECDATA//
CONTROL/AMC/KING 24/COPPER 23/CHERRY 10/SAHARA/JRCC ON COPPER 10//
REFUEL/KING 09/160/PINK/030/302143Z/4.5/252.8/123.1//

****

4. Access to ATO information may be limited to a paper copy of the entire document, or available to all JSRC personnel in the contingency theater automated planning system (CTAPS). If CTAPS is not available, and the JSRC has computers with word processing programs installed, you may be able to sort the ATO using FRAGWORKS or computer-assisted force management system programs. The search or find function available in the word processing program can then speed the access of callsigns and associated information as well as locating and printing JSRC specific information. The following is an example of the information used.

****

Saturday [mon] [day], 19XX

CALLSIGN	# TP AC	TASKUNIT	MSN T	TOT	TFT	LOCATION
ADDER 31	1MC-130E	AFSOC	GSOF	120200Z	130159Z	KTO
BERETTA 11	2 A-10A	354TFW	GCAS	121500Z	130259Z	TBA
BERETTA 11	2 A-10A	354TFW	GCAS	120300Z	121459Z	TBA
KAYO 01 AB	2F-15	53TFS	GDCA	120200Z	130159Z	AL KHARJ
KAYO 03 AB	2F-15	53TFS	GDCA	120200Z	130159Z	AL KHARJ
LIGHTNING 014	F-15	RSAF3FW	GDCA	120200Z	130159Z	EASTERN SECTOR QRA
MOCCASIN 01	1MH-53	AFSOC	GSOF	120200Z	130159Z	KFIA
RESCUE 74	1 212	RSAF2FW	GSAR	120200Z	130159Z	WESTERN SECTOR\TBA
RESCUE 75	1 212	RSAF-KFAA	GSAR	120200Z	130159Z	TBA
SALVAGE 66	2KS-3A	C68	GAAR	120200Z	130159Z	TBD
SANDY 15	2 A-10A	354TFW	GSAR	120300Z	121500Z	TBA
SAR 77	1 212	RSAF5FW	GSAR	120200Z	130159Z	SOUTHERN SECTOR
SAR 70	1 212	RSAF3FW	GSAR	120200Z	130159Z	EASTERN SECTOR\TBA
SAR 76	1 212	RSAF7FW	GSAR	120200Z	130159Z	NORTH WEST SECTOR
SHOGUN 21	2F-14	C68	CAP	120900Z	121030Z	CONNOR-EARL CAP
SHOGUN 23	2F-18	C68	CA	120900Z	121030Z	CONNOR-EARL CAP
SHOGUN 31	2F-14	C68	CAP	121030Z	121200Z	CONNOR-EARL CAP

****

5. The following example provides selected excerpts of the type of information extracted from a theater's complete daily and monthly SPINS, which supported an operation order. Some sections remained current for a month, while others changed weekly and daily. Using the process in D below, changed information could be modified, printed for all to see, and also left on the computer for controllers to access in searches for particular groupings of words or phrases.

****

1. GENERAL INFORMATION.

A. THESE SPINS ARE PUBLISHED TO COVER THE PERIOD _[date time group]_ THRU _[date time group]_. FUTURE SPINS WILL BE PUBLISHED MONTHLY UNTIL THE OPS PLANS DIVISION CLOSES SHOP. CONTINGENCY CODE WORDS, MODES/CODES, AND AUTHENTICATION TABLES WILL REMAIN IN EFFECT UNTIL CANCELED BY THIS HEADQUARTERS. CHANGES WILL BE PUBLISHED IN THE DAILY ATO.

B. and C. Not Used.

D. THE FOLLOWING CODE WORDS WILL BE USED FOR THE DURATION OF THESE ATOS. ALL CALLS REGARDING ENEMY AIRCRAFT ID AND ALL OTHER CALLS NOT SPECIFIED BELOW WILL BE IN THE CLEAR. CODE WORD MEANINGS NO LONGER APPEARING IN THIS SECTION HAVE BEEN INTENTIONALLY DELETED.

MEANING	[dtg]_	[dtg]_	[dtg]_	[dtg]_	[dtg]_
INDIV MSN CNX	RODEO	SWAM	QUEEN	EARL	PEN
CHATTERMARK	PANDA	BAND	HAT	EARTH	POCKET
RTB	PET	PENCIL	PUCK	REFILL	GLOVE
OFF-STATION	FARM	AVENUE	ROCK	RODEO	PET
ON-STATION	RIDGE	FARM	LEAF	ROPE	VALLEY
SYSTEM DOWN	BARN	HILL	SIREN	SHEEP	SPIKE
SYSTEM UP	PARTY	CAMP	BARN	CART	BED
BASE NO/ALT	4/4000	3/3000	6/6000	8/8000	4/4000

(1) Not Used.

(2) BULLSEYE POINTS:

BULLSEYE	_[location TACAN]_	MASTER BULLSEYE FOR AOR
TACO	_[lat]_N _[long]_W	___[location]__
HOTDOG	_[lat]_N _[long]_W	___[location]__
PIRANHA	_[lat]_N _[long]_W	___[location]__
	___[location]__	CENTRAL BULLSEYE HANDOVER POINT

2-7. Not Used.

8. CHECK-IN REFERENCE POINTS ARE AS FOLLOWS:

[location] LOC: _[lat]_N _[long]_W CODE NAME: DELAWARE
[location] LOC: _[lat]_N _[long]_W CODE NAME: RHODE ISLAND

(1) and (2) Not Used.

(3) THE FOLLOWING CODE WORDS ARE FOR _[component]_ USE OVER THE ___[location]__. THEY ARE NOT MEANT TO BE USED BY USAF AIRCRAFT EXCEPT IN THOSE CASES WHERE A MISSION IS FRAGGED TO WORK DIRECTLY WITH THE _[component]_ OVER THE ___[location]__.

****

6. The following provides examples of code words, brevity codes, and authentications.

****

(A) BREVITY CODE WORDS FOR USE WITH _[COMPONENT]_, ONLY:

MEANING	[dtg]_	[dtg]_	[dtg]_	[dtg]_	[dtg]_	[dtg]_	[dtg]_
OVERHEAD	MASK	NILE	CLUB	JUKEBOX	SIREN	HAT	
LAUNCH	BURN	PRINCE	DEER	BURN	MASK	REFILL	JAZZ
EMCON	STONE	LEAF	JAZZ	SLEEPY	GRUNT	STEAK	
SURFACE	TINKER	VIDEO	SOAP	DERBY	VIDEO	PET	GIN
SUBSURFACE	EARL	HAT	LAKE	JESTER	FLINT	PUCK	AVENUE
RECOVERY	QUEEN	BEER	CLAW	HOUSE	TREE	SOAP	
MSN SUCCESS	ILLIAD	TREE	RIDGE	PANDA	BUBBLE	SWAN	CHOP
MSN FAILURE	SLEEPY	TOPPER	TINKER	CHOP	STEAK	BARON	HOUSE
READY DECK	FLAG	BARON	TREE	PRINCE	DOPEY	EARTH	PENCIL
DOUBLE CYCLE	CLUB	AVENUE	ILLIAD	TOPPER	QUACK	TWINS	BEER
TANKING	DERBY	SPIKE	BULL	CALF	LAUGH	JUKEBOX	ROCK
SOUR TANKER	QUACK	STONE	HOMER	TWINS	BARON	BAND	TINKER
FEET DRY	BAND	COURAGE	ODESSEY	PARTY	GIN	DOPEY	LEAF
FEET WET	PRETZEL	ZORRO	FLAG	BED	PARTY	STONE	
BASE HDG/SPD	35	55	40	75	90	50	85
BASE FREQ	305	295	360	275	345	315	290
BASE LAT/LON	____N	____N	____N	____N	____N	____N	____N
	____W	____W	____W	____W	____W	____W	____W

O. AUTHENTICATORS:

(1) THE AUTHENTICATION MATRIX SHOWN BELOW IS INTENDED FOR GENERAL USE BY ALL FORCES LISTED IN THE ATO. IT WILL BE USED UNTIL A PERMANENT AUTHENTICATION BOOKLET IS PUBLISHED BY _[theater command]_.

PRIMARY AUTHENTICATION TABLE FOR _[beginning/end date one week]_

	A	B	C	D	E	F	G	H
1	VP	OU	ZY	FR	SY	QE	WF	LN
2	WE	HN	KY	KD	IO	EG	DQ	LZ
3	RU	QP	IV	GX	NH	XB	ZI	KO
4	TI	JY	NV	VM	AC	HY	YM	HZ
5	EB	ZB	TY	WH	NU	JR	FF	VW
6	CI	DW	YW	XC	WX	ON	JG	PZ
7	TO	NS	IN	MV	MK	NM	CV	DR
8	VL	WK	EH	ZC	QH	WY	CC	NR
9	HB	NI	UR	PX	AF	AK	FG	TU
0	JW	OW	BD	YD	BQ	FU	GJ	KT

(2) EMERGENCY BACKUP AUTHENTICATION:
EVEN DAY CHALLENGE - ANY EVEN NUMBER BETWEEN 200 AND 250
REPLY - ANY EVEN NUMBER BETWEEN 100 AND 150
ODD DAY CHALLENGE - ANY ODD NUMBER BETWEEN 51 AND 99
REPLY - ANY ODD NUMBER BETWEEN 151 AND 199
****

7. The remaining examples contain information unique to CSAR operations. All personnel who plan or conduct CSAR operations should be familiar with this information.
****

6. CSAR PROCEDURES

A. UPON PARACHUTE LANDING, IMMEDIATELY ASSESS PHYSICAL CONDITION. IF THE EJECTION SEAT PERSONAL LOCATOR BEACON WAS SET TO THE AUTOMATIC ACTIVATION MODE, TURN IT OFF AND KEEP IT FOR FUTURE USE. USE THE PRC 112 (IF ISSUED) AS YOUR PRIMARY SURVIVAL RADIO AND PRC 90 AS A BACKUP AND MAKE AN INITIAL RADIO CALL IF FRIENDLY AIRCRAFT ARE IN THE AREA.

(1) FOLLOW THIS PROCEDURE FOR USE OF PRC 112:

(A) TRANSMIT A 5-10 SECOND BEACON ON 243.0.

(B) TRANSMIT ON 243.0/VOICE, "MAYDAY, MAYDAY, MAYDAY, YOUR TACTICAL CALLSIGN, YOUR PHYSICAL CONDITION, SAY SWITCHING TO "A" FREQUENCY"

(C) LISTEN MOMENTARILY FOR A RESPONSE ON 243.0 BEFORE SWITCHING TO FREQUENCY "A" TO LISTEN. IMPORTANT: IN ORDER FOR FRIENDLY FORCES TO INTERROGATE AND RECEIVE YOUR LOCATION, THE PRC 112 MUST BE LEFT IN THE "ON" POSITION AT ALL TIMES.

(2) FOLLOW THIS PROCEDURE FOR USE OF PRC 90

(A) TRANSMIT A 15 SECOND BEACON ON 243.0.

(B) TRANSMIT ON 243.0/VOICE, "MAYDAY, MAYDAY, MAYDAY, YOUR TACTICAL CALLSIGN, YOUR PHYSICAL CONDITION."

(C) LISTEN MOMENTARILY FOR A RESPONSE ON 243.0 BEFORE SWITCHING TO 282.8 TO LISTEN.

(3) ORGANIZE EQUIPMENT, DESTROY IF APPLICABLE, AND MOVE SAFE DISTANCE FROM CRASH SITE BEFORE MOVING ON TO A SUITABLE HOLE-UP SITE.

(4) ONCE AT THE HOLE-UP SITE IF NO INITIAL CONTACT WITH FRIENDLY AIRCRAFT WAS MADE, EVERY HOUR ON THE HALF HOUR (:30) MAKE ANOTHER ATTEMPT TO CONTACT FRIENDLY FORCES USING THE ABOVE PROCEDURES.

(5) ONCE AT THE HOLE-UP SITE AND INITIAL CONTACT WAS SUCCESSFUL, JUST LISTEN ON THE HOUR UNTIL 10 MINUTES AFTER THE HOUR. LISTEN ON FREQUENCY "A" FOR PRC 112 AND ON 282.8 FOR PRC 90 RADIOS.

B. EJECTION SEAT PERSONAL LOCATOR BEACONS MAY BE CONFIGURED TO A MANUAL OR AUTOMATIC ACTIVATION MODE. THE DECISION FOR MODE SELECTION SHOULD BE BASED UPON THE DEGREE OF THREAT THROUGHOUT THE MISSION. THE DECISION WILL REST WITH THE AIRCREW.

C. FIXED WING AIRCRAFT ("SANDY") MAY CONDUCT A ROUTE SEARCH IN AN ATTEMPT TO LOCATE SURVIVORS. ANYTIME A DOWNED CREW RECOGNIZES A FRIENDLY AIRCRAFT OVERHEAD, THE SURVIVOR SHOULD MONITOR 282.8 AND, IF CONTACT IS MADE, AUTHENTICATE THE SANDY. THE BEST WAY FOR THE SURVIVOR TO SIGNAL THE SANDY IS WITH THE SURVIVAL MIRROR. BECAUSE OF ENEMY MIJI AND DF, LIMIT RADIO TRANSMISSIONS, DO NOT GIVE YOUR POSITION IN THE CLEAR OR USE SIGNAL FLARES OR SMOKES.

D. INFRARED STROBE LIGHTS. ENSURE TERRAIN MASKING TECHNIQUES ARE USED IF THE POSSIBILITY OF ENEMY PERSONNEL IN THE AREA. THE IR STROBE LIGHT SHOULD BE USED ONLY WHEN REQUESTED BY RESCUE FORCES AFTER MUTUAL AUTHENTICATION HAS BEEN ESTABLISHED.

E. WARNING: TO PREVENT COMPROMISE ONLY GIVE AIRCREWS THE LETTER OF THE WEEK AND WORD/NUMBER OF THE DAY FOR THE FIRST DAY OF THE PERIOD THEY WILL BE FLYING.

WEEK [1] (_[beginning/end date one week]_) LETTER OF THE WEEK __ "Y"
WEEK [2] (_[beginning/end date one week]_) LETTER OF THE WEEK __ "T"
WEEK [3] (_[beginning/end date one week]_) LETTER OF THE WEEK __ "X"
WEEK [4] (_[beginning/end date one week]_) LETTER OF THE WEEK __ "Z"
WEEK [5] (_[beginning/end date one week]_) LETTER OF THE WEEK __ "J"
WEEK [6] (_[beginning/end date one week]_) LETTER OF THE WEEK __ "C"
WEEK [7] (_[beginning/end date one week]_) LETTER OF THE WEEK __ "N"

WORD AND NUMBER

[MON/DAY] (D+[#]) TANDY, 8 [MON/DAY] (D+[#]) DELL, 2
[MON/DAY] (D+[#]) MACINTOSH, 6
[MON/DAY] (D+[#]) COMMODORE, 9
[MON/DAY] (D+[#]) GOLDSTAR, 3 [MON/DAY] (D+[#]) ZEOS, 1
[MON/DAY] (D+[#]) CHERRY,77 [MON/DAY] (D+[#]) BLACKBERRY, 38
[MON/DAY] (D+[#]) RASBERRY,12 [MON/DAY] (D+[#]) CHOCOLATE, 41
[MON/DAY] (D+[#]) DESIGN,8 [MON/DAY] (D+[#]) CONTROL,4
[MON/DAY] (D+[#]) HALON,32 [MON/DAY] (D+[#]) PENCIL,7
[MON/DAY] (D+[#]) MAKER,15 [MON/DAY] (D+[#]) PEPSI,37
[MON/DAY] (D+[#]) FANTA,21 [MON/DAY] (D+[#]) ADAM,80
[MON/DAY] (D+[#]) STARBURST,10 [MON/DAY] (D+[#]) TADPOLE,23

F. CSAR INSIDE FRIENDLY LINES: STAY NEAR THE CRASH SITE IF POSSIBLE. THIS IS YOUR BEST VISUAL SIGNAL.

(1) STRETCH OUT YOUR PARACHUTE TO CREATE ANOTHER SIGNAL.

(2) TRANSMIT A 30 SECOND BEACON, CALL SIGN, AND PHYSICAL CONDITION ON GUARD. REPEAT THIS PROCEDURE EVERY HOUR ON THE HALF HOUR UNTIL CONTACT IS MADE WITH FRIENDLY FORCES. YOU MAY ATTEMPT CONTACT WITH ANY FRIENDLY AIRCRAFT, WHENEVER SIGHTED, ON 243.0.

(3) IF YOU MUST LEAVE THE AIRCRAFT, ATTEMPT TO NOTIFY FRIENDLY FORCES OF YOUR INTENTIONS, OR LEAVE A MESSAGE WITH THE AIRCRAFT.

G. PRC 112 FREQUENCIES ARE: A - _[freq]_ AND B - _[freq]_.

****

NOTE: NOT ALL RESCUE AIRCRAFT ARE CAPABLE OF USING THE TRANSPONDER FEATURE OF THE PRC-112. WITHOUT THE TRANSPONDER FEATURE, THE PRC-112 STILL HAS PROGRAMMABLE FREQUENCIES AND SUPERIOR RANGE WHICH WILL HELP THE CSAR. SOF, DUE TO THEIR MISSIONS AND LOCATIONS, REQUIRE SPECIAL CONSIDERATION FOR CSAR/CAS FREQUENCIES AND AUTHENTICATION BECAUSE THEY ARE EMPLOYED FOR PERIODS OF TIME BEYOND THE NORMAL DAY/LETTER/ NUMBER AUTHENTICATION USED BY DOWNED PILOTS.

****

H. SARSAT POSITIONING PROCEDURES

(1) THE SARSAT (SEARCH AND RESCUE SATELLITE AIDED TRACKING) COVERS THE _[theater name]_ AOR, RELAYING ANY SIGNAL TRANSMITTED ON 243.0, 121.5, OR 406 MHZ. THE SATELLITE PASSES OVER OUR AREA APPROXIMATELY TEN TIMES A DAY FOR 12 TO 15 MINUTE WINDOWS. THESE WINDOWS WILL BE UPDATED DAILY IN THE SAR SPINS.

(2) TO USE THE SATELLITE DURING THE COVERAGE TIME, SET YOUR SURVIVAL RADIO TO 243.0, 121.5, OR 406/VOICE AND TRANSMIT YOUR CALL SIGN, POSITION RELATIVE TO BULLSEYE, AND FINISH WITH YOUR CALL SIGN AGAIN. THE SATELLITE CAN FIX YOUR POSITION ONLY WITH A 4 MINUTE TRANSMISSION. TO MINIMIZE NON-SARSAT DETECTION, COVER THE MIKE WITH YOUR HAND AND HOLD DOWN THE PUSH TO TALK BUTTON FOR 4 MINUTES.

(3) DO NOT USE THIS PROCEDURE IF THERE IS THE POSSIBILITY OF ENEMY DIRECTION FINDING EQUIPMENT IN YOUR AREA.

SARSAT PASSES

DATE	START	STOP	DATE	START	STOP	TRNSMSN
_____	____Z	____Z	_____	____Z	____Z	
_____	____Z	____Z	_____	____Z	____Z	
_____	____Z	____Z	_____	____Z	____Z	
_____	____Z	____Z	_____	____Z	____Z	
_____	____Z	____Z	_____	____Z	____Z	
_____	____Z	____Z	_____	____Z	____Z	
_____	____Z	____Z	_____	____Z	____Z	

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APPENDIX G
CSAR-CAPABLE ASSETS

The aircraft capabilities appendix describes the basic performance characteristics and rescue, navigation, and communication systems of resources that can be used as primary or secondary CSAR assets. Assets listed under the US Air Force are the only ones dedicated solely to the CSAR mission. Fixed-wing assets can be used in mass casualty situations, or to quickly transport critically injured personnel across vast distances. CSAR staff elements and planners should use this appendix as a guide when evaluating the relative capabilities of available resources to conduct or support a given CSAR mission.

1. US ARMY ASSETS

   UH-60
   CH-47
   UH-1
   Long-Range Surveillance Units
   Special Forces Units

2. US AIR FORCE ASSETS

   HH-60G
   HC-130H/P/N
   Pararescue

3. US NAVY ASSETS

   HH-60H
   SH-60F
   Submarines
   Surface Ships
   Naval Special Warfare (SEAL)

4. US MARINE CORPS ASSETS

   UH-1N
   CH-53D/E
   CH-46E
   Long-Range Surveillance Units

5. COAST GUARD SEARCH AND RESCUE ASSETS

HH-65A
HU-25A/B/C
HC-130H
HH-60J
Coast Guard Cutters

6. SPECIAL OPERATIONS FORCES ASSETS

MH-53J
MC-130P
MC-130E/H
MH-47D/E
MH-60G/K/L
AH/MH-6J
Special Tactics Teams

See Pages G-3 to G-30 for additional information.

US ARMY	UH-60	UH-1	CH-47
CAPABILITIES			
SPEED (KIAS)	149	105	150
COMBAT RADIUS (NM)	161	124	100
HIFR			
AIR REFUELABLE			
NIGHT VISION DEVICES	YES	YES	YES
ARMAMENT	YES	YES	YES
PASSENGERS	11	8	30
RESCUE CAPABILITIES			
SAR SWIMMER			
EMERGENCY MED. TECH			
PERSONNEL HOIST	ON CALL	ON CALL	ON CALL
STOKES LITTER			
POLE LITTER			
ROPE LADDER			
HORSE COLLAR			
RESCUE BASKET			
FOREST PENETRATOR			
FLARES			
PLS/BEACON LOCATOR	SOME	SOME	SOME
AMPHIBIOUS PLATFORM			
MA-1 KIT			
EXTRACTOR KIT			
EMERGENCY MED. KIT			

US ARMY	UH-60	UH-1	CH-47
COMMUNICATIONS			
UHF	YES	YES	YES
HF	SOME	SOME	
VHF-FM	YES	YES	YES
VHF-AM	YES	YES	YES
SATCOM			
SECURE	KY-58	KY-58	KY-58
NAVIGATION			
INERTIAL			
GPS			
TACAN			
VOR	YES	YES	YES
DOPPLER/MAP DISPLAY	YES	YES	YES
UHF-DF			YES
VHF-FM	YES	YES	YES
VHF-AM	YES	YES	YES
ADF		YES	YES
FLIR			NO

US AIR FORCE	HH-60G	HC-130/P/N
CAPABILITIES		
SPEED (KIAS)	110-150 KTS	220
COMBAT RADIUS (NM)	220	1800
HIFR	NO	
AIR REFUELABLE	YES	SOME
NIGHT VISION DEVICES	YES	YES
ARMED	YES	
PASSENGERS	4	13
RESCUE CAPABILITIES		
SAR SWIMMER	YES	YES
EMERGENCY MED. TECH	YES	YES
PERSONNEL HOIST	YES	
STOKES LITTER	ON CALL	
POLE LITTER-STRETCHER	ON CALL	ON CALL
ROPE LADDER	ON CALL	
HORSE COLLAR	ON CALL	
RESCUE BASKET		
PENETRATOR	YES	
FLARES	NO	YES
RADAR BEACON FINDER	YES	YES
PERSONAL LOCATOR SYSTEM (PLS)	YES	
AMPHIBIOUS PLATFORM		
MA-1 KIT		YES
EXTRACTOR KIT		
M-5 EMERGENCY MED. KIT		

US AIR FORCE	HH-60G	HC-130/P/N
COMMUNICATIONS		
UHF	YES	YES
HF	YES	YES
VHF-FM	YES	YES
VHF-AM	YES	YES
SATCOM	PARTIAL	YES
SECURE	KY 58/75	KY 58/75
NAVIGATION		
INERTIAL	YES	YES
GPS	YES	YES
TACAN	YES	YES
VOR	YES	YES
DOPPLER/MAP DISPLAY	YES	YES
UHF-DF	YES	YES
VHF-FM	YES	YES
UHF-AM TRACKER	NO	YES
RADAR	YES	YES
ADF	YES	YES
FLIR	YES	

US NAVY	HH-60H	H-60F
CAPABILITIES		
SPEED (KIAS)	180	180
COMBAT RADIUS (NM)	250	250
HIFR	YES	YES
AIR REFUELABLE		
NIGHT VISION DEVICES	YES	YES
ARMED	YES	YES
PASSENGERS	10	5
RESCUE CAPABILITIES		
SAR SWIMMER	YES	YES
EMERGENCY MED. TECH		
PERSONNEL HOIST	YES	YES
RESCUE LITTER	YES	YES
POLE LITTER-STRETCHER		
ROPE LADDER	ROPES	ROPES
HORSE COLLAR	YES	YES
RESCUE BASKET		
FOREST PENETRATOR	YES	YES
FLARES	YES	YES
DOWNED AVIATOR LOCATOR SYSTEM	YES	
AMPHIBIOUS PLATFORM		
MA-1 KIT		
EXTRACTOR KIT		
LEVEL A MEDICAL KIT	YES	YES

US NAVY	HH-60H	H-60F
COMMUNICATIONS		
UHF	YES	YES
HF	YES	YES
VHF-FM	YES	YES
VHF-AM	YES	YES
SATCOM	SOME	YES
SECURE	KY-75/58	KY-75/58
NAVIGATION		
INERTIAL		
GPS		
TACAN	YES	YES
VOR		
DOPPLER/MAP DISPLAY	YES	YES
UHF-DF	YES	YES
VHF-FM		
VHF-AM		
DOPPLER RADAR	YES	YES
FLIR		

US MARINE CORPS	UH-1N	CH-46E	CH-53D	CH-53E
CAPABILITIES				
SPEED (KIAS)	90	130	130	150
COMBAT RADIUS (NM)	110	100	200	200
HIFR	NO	NO	NO	YES
AIR REFUELABLE	NO	NO	NO	YES
NIGHT VISION DEVICES	YES	YES	YES	YES
ARMAMENT	YES	YES	YES	YES
PASSENGERS	4-6	8-14	34	55
RESCUE CAPABILITIES				
SAR SWIMMER	NO	NO	NO	NO
EMERGENCY MED. TECH	NO	NO	NO	NO
PERSONNEL HOIST	YES	YES	NO	NO
STOKES LITTER	YES	NO	NO	NO
POLE LITTER-STRETCHER	YES	YES	YES	YES
ROPE LADDER	NO	NO	NO	NO
HORSE COLLAR	YES	NO	NO	NO
RESCUE BASKET	YES	NO	NO	NO
FOREST PENETRATOR	YES	YES	YES	YES
FLARES	YES	YES	YES	YES
PLS/BEACON SYSTEM	YES	NO	NO	NO
AMPHIBIOUS PLATFORM	YES	YES	YES	YES
MA-1 KIT	NO	NO	NO	NO
EXTRACTOR KIT	NO	NO	NO	NO
EMERGENCY MEDICAL KIT	NO	NO	NO	NO

US MARINE CORPS	UH-1N	CH-46E	CH-53D	CH-53E
COMMUNICATIONS				
UHF	AM ONLY	YES	YES	YES
HF	YES	YES	YES	YES
VHF-FM	YES	YES	YES	YES
VHF-AM	YES	YES	YES	YES
SATCOM	YES*	NO	NO	NO
SECURE	KY 28/58	KY 28/58	KY 28/58	KY 28/58
NAVIGATION				
INERTIAL	NO	NO	NO	NO
GPS	YES	YES	YES	YES
TACAN	YES	YES	YES	YES
VOR	NO	NO	NO	YES
DOPPLER/MAP DISPLAY	YES*	NO	NO	NO
UHF-DF	YES	YES	YES	YES
VHF-FM	YES	NO	YES	NO
VHF-AM	YES	NO	NO	NO
LF-ADF	NO	YES	YES	YES
FLIR	NO	NO	NO	YES
*Starting FY 96				

US COAST GUARD	HH-65A	HH-60J	HU-25A/B/-	HC-130
CAPABILITIES				
SPEED (KIAS)	125	120	250	240
COMBAT RADIUS (NM)	150	300	1000	2100
HIFR	YES	YES		
AIR REFUELABLE				
NIGHT VISION DEVICES		YES	SOME	
PASSENGERS	3	6	5	92
RESCUE CAPABILITIES				
SAR SWIMMER	YES	YES		
EMERGENCY MED. TECH	YES	YES		
PERSONNEL HOIST	YES	YES		
STOKES LITTER	YES	YES		
POLE LITTER-STRETCHER				
ROPE LADDER				
HORSE COLLAR	YES	YES		
RESCUE BASKET	YES	YES		
FOREST PENETRATOR				
FLARES	YES	YES		
RADAR BEACON SYSTEM	YES	YES	YES	
AMPHIBIOUS PLATFORM				
MA-1 KIT				YES
EXTRACTOR KIT				
M-5 EMERGENCY MED KIT				

US COAST GUARD	HH-65A	HH-60J	HU-26A/B/-	HC-130
COMMUNICATIONS				
UHF	YES	YES	YES	YES
HF	YES	YES	YES	YES
VHF-FM	YES	YES	YES	YES
VHF-AM	YES	YES	YES	YES
SATCOM				SOME
SECURE	SOME	YES	YES	YES
NAVIGATION				
LORAN	YES		YES	YES
INERTIAL	OMEGA		YES	YES
GPS	YES	YES	YES	YES
TACAN	YES	YES	YES	YES
VOR	YES	YES	YES	YES
DOPPLER/MAP DISPLAY	YES	YES	YES	YES
UHF-DF	YES	YES	YES	YES
VHF-FM	YES	YES	YES	NO
VHF-AM	YES	YES	YES	YES
RADAR	YES	YES	YES	YES
ADF	YES	YES	YES	YES
FLIR		SOME	SOME	

AFSOC	MH-60G	MH-53J	MC-130P	MC-130E/-HH	AC-130H/-U
CAPABILITIES					
SPEED (KIAS)	120	120	220	220	230
COMBAT RADIUS (NM)	250	250	1800	1250	1400
HIFR	NO	NO			
AIR REFUELABLE	YES	YES	SOME	YES (E ONLY)	YES
NIGHT VISION DEVICES	YES	YES	YES	YES	YES
ARMED	YES	YES	NO	NO	YES
PASSENGERS	10	37	13	54/75	13
RESCUE CAPABILITIES					
SAR SWIMMER	ON CALL	ON CALL	ON CALL	ON CALL	
EMERGENCY MED. TECH	ON CALL	ON CALL	ON CALL	ON CALL	
PERSONNEL HOIST	YES	YES			
STOKES LITTER	ON CALL	ON CALL			
POLE LITTER-STRETCHER	ON CALL	ON CALL	ON CALL	ON CALL	
ROPE LADDER	ON CALL	ON CALL			
HORSE COLLAR					
RESCUE BASKET					
PENETRATOR	YES	YES			
FLARES	ON CALL	YES	YES		
RADAR BEACON FINDER	YES	YES	YES	YES	
PERSONAL LOCATOR SYSTEM (PLS)	YES	YES			YES

AFSOC	MH-60G	MH-53J	MC-130P	MC-130E/-HH	AC-130H/-U
AMPHIBIOUS PLATFORM					
MA-1 KIT			YES		
EXTRACTOR KIT					
M-5 EMERGENCY MED KIT					
SURFACE TEAM	YES	YES	YES	YES	
COMMUNICATIONS					
UHF	YES	YES	YES	YES	YES
HF	YES	YES	YES	YES	YES
VHF-FM	YES	YES	YES	YES	YES
VHF-AM	YES	YES	YES	YES	YES
SATCOM	YES	YES	YES	YES	YES
SECURE	KY 58/75	KY 58/75	KY 58/75	KY 58/75	KY 58/75
NAVIGATION					
INERTIAL	YES	YES	YES	YES	YES
GPS	YES	YES	SOME	YES	YES
TACAN	YES	YES	YES	YES	YES
VOR	YES	YES	YES	YES	YES
DOPPLER/MAP DISPLAY	YES	YES	YES	YES	YES
UHF-DF	YES	YES	YES	YES	YES
VHF-DF	YES		YES	YES	YES
VHF-AM UHF TRACKER			YES		
RADAR	YES	YES	YES	YES	YES
ADF			YES	YES	YES
FLIR	YES	YES	YES	YES	YES

USASOC	MH-47D/E	AH/MH-6J	MH-60G/K/L
CAPABILITIES			
SPEED (KIAS)	120	80	120
COMBAT RADIUS (NM)	260	133	225
HIFR			
AIR REFUELABLE	YES		YES (-K)
NIGHT VISION DEVICES	YES	YES	YES
ARMED	YES	YES	YES
PASSENGERS/LITTERS	40/24	4/0	8/2
RESCUE CAPABILITIES			
SAR SWIMMER			
EMERGENCY MED. TECH			
PERSONNEL HOIST	YES		YES
STOKES LITTER			
POLE LITTER-STRETCHER	YES	YES	
ROPE LADDER	YES	YES	YES
HORSE COLLAR	YES		YES
RESCUE BASKET			
FOREST PENETRATOR	ON CALL		ON CALL
FLARES	YES		
RADAR BEACON FINDER	YES	SOME	YES
AMPHIBIOUS PLATFORM	NO (-E) YES (-D)		
MA-1 KIT			
EXTRACTOR KIT		YES	
M-5 EMERGENCY MED KIT		YES	
COMMUNICATIONS			

USASOC	MH-47D/E	AH/MH-6J	MH-60G/K/L
UHF	YES	YES	YES
HF	YES		
VHF-FM			YES
VHF-AM			YES
SATCOM	YES	YES	YES
SECURE	KY 28/58	KY 28/58	KY 28/58
NAVIGATION			
LORAN		YES	
INERTIAL	YES		
GPS	YES	YES	YES
TACAN	YES	YES	YES
VOR	YES	YES	YES
DOPPLER/MAP DISPLAY		YES	
UHF-DF	YES	YES	YES
VHF-FM	YES	YES	YES
VHF-AM	YES	YES	YES
RADAR			YES
ADF	YES	YES	YES
FLIR	YES	YES	YES

ADDITIONAL CSAR-CAPABLE ASSETS

LONG-RANGE SURVEILLANCE UNITS

Capabilities:

Operate beyond the FLOT for extended periods with minimal external support.
Conduct operations in adverse weather and over difficult terrain.
Recover by air, land, or water or by using evasion techniques.
Operate from the FLOT out to the extent of corps area of interest.
Link up with isolated personnel.

Limitations:

Self-defense capability is limited (lightly armed).
Mobility is normally limited to foot movement in area of operations.
Organic medical capability is limited to individual first aid.

Speed:

Either mounted or dismounted

Communications:

AM, FM, VHF, and/or UHF radios

ARMY SPECIAL FORCES UNITS

Capabilities:

Operate in enemy-held territory for extended periods of time with minimal support.
Rescue designated (by JFC Operations officer [J-3]) isolated personnel detained by a hostile power.
Locate, identify, and recover designated (by JFC J-3) isolated personnel not detained by a hostile power.
Facilitate contact, authentication, security, medical treatment, movement, and exfiltration of isolated personnel.
Clandestinely recover evaders to safeguard the integrity of designated evasion areas.
Operate in all environments.
Proficient in various languages.

Limitations:

Priority of person(s) to be recovered needs to be sufficiently high to warrant the planning and execution of a special operation.

Speed:

Either mounted or dismounted

Communications:

AM, FM, VHF, UHF, and/or super-high frequency radios

Medical:

Special forces detachments have medics trained for emergency surgery and dental care, beyond emergency medical treatment (EMT) capability.

NAVAL SPECIAL WARFARE COMPONENT COMMANDS

Capabilities:

Rescue isolated personnel designated by JFC J-3 that have been detained by a hostile force.
Provide a broad range of CSAR capabilities in a maritime environment. The principal components for CSAR (strike rescue) missions are SEAL teams, swimmer delivery vehicle teams, and special boat squadrons.
Operate in enemy-held territory for extended periods with minimum external support.
Conduct operations in adverse weather and over difficult littoral areas.
Locate, identify, and recover designated isolated personnel.
Facilitate contact, authentication, security, medical treatment, movement, and exfiltration of isolated personnel.

Limitations:

Priority of person(s) to be recovered needs to be sufficiently high to warrant the planning and execution of a special operation.

Other:

More specific information will depend on the type of unit involved and must be determined at the time of planning.

SUBMARINES

Capabilities:

Overwater CSAR

Limitations:

Classified

Speed and/or Combat Radius:

Classified

Communications:

UHF, VHF, HF, SATCOM

Rescue Equipment:

Rope, litter, rope ladder, flares, horse collar

Armament:

Classified

SURFACE SHIPS

Capabilities:

Overwater CSAR; most ships capable of landing and/or refueling aircraft.

Limitations:

Varying capabilities (by ship class) to operate in an opposed environment.

Speed and/or Combat Radius:

16-30 knot speed; combat radius classified.

Navigation:

GPS, long-range aid to navigation (LORAN), navigation satellite (NAVSAT), tactical air navigation (TACAN)

Rescue Equipment:

Hoist, rope, pole litter, Stokes litter, rope ladder, flares, horse collar, small boat, CSAR swimmer.

Defensive electronic countermeasures (ECM):

Classified

SPECIAL TACTICS FORCES

Capabilities:

Provides CSAR forces and C2 mission management capability.
Provides combat medical and trauma care, conducts life-saving, advanced life-sustaining EMT.
Conducts mass casualty triage operations.
Establishes and/or operates casualty collection and transfer points.
Performs aerial and surface operations in friendly, hostile, denied, or sensitive areas.
Tactical insertion and extraction methods.
Tactical surface movement methods.
Normally employed for SOF CSAR supporting conventional forces.
Specialized skills for rescue and recovery of isolated personnel.

Limitations:

Classified

Speed:

Capable of employing by static line, high-altitude low-opening parachute technique (HALO), and/or high-altitude high-opening parachute technique (HAHO), scuba, watercraft, mounted (all-terrain vehicles), dismounted, or any other means available.

Communications:

VHF, UHF, FM, HF secure, SATCOM, pyrotechnics, and IR devices.

Rescue Equipment:

Field equipment for environmental protection and sustainment.
Medical kits and litters.
Basic adverse terrain and mountain rescue equipment.

SPECIAL TACTICS TEAMS

Capabilities:

Consist of combat control, pararescue, and combat weather personnel.
Provide combat medical and trauma care, conduct life-saving and advanced life-sustaining EMT.
Perform aerial and surface operations in friendly, hostile, denied, or sensitive areas.
Tactical insertion and extraction methods.
Specialized skills for rescue and recovery of isolated personnel.
Conduct mass casualty triage operations.

Establish and/or operate casualty collection and transfer points.
Establish assault zones with an air traffic control capability.
Provide C2 radio capabilities.
Operate FARP.
Designate targets.
Assist in offensive attack and demolition operations.
Provide human intelligence and airfield reconnaissance.
Observe and report weather conditions.

Limitations:

Classified

Speed:

Capable of deploying by static line, HALO, and/or HAHO, scuba, watercraft, mounted (all-terrain vehicles), dismounted, or any other means available.

Communications:

VHF, UHF, FM, HF secure, SATCOM, pyrotechnics, and IR devices.

Rescue Equipment:

Field equipment for environmental protection and sustainment.
Medical kits and litters.
Basic adverse terrain and mountain rescue equipment.

COAST GUARD CUTTERS

Capabilities:

Overwater CSAR.
Most are aviation-capable to some degree depending on class.
378 foot high-endurance Coast Guard cutter, 270 foot medium-endurance Coast Guard cutter (WMEC), 210 foot WMEC, and polar icebreakers are flight-deck equipped.
Icebreakers can break from 3 to 6 feet continuous and 11 to 21 feet using back and ram techniques.

Limitations:

Varies by class to operate in an opposed environment.

Speed/Combat Radius:

18 to 30 knots and/or 1000 to 41,000 NMs

Communications:

VHF, UHF, FM, HF, SATCOM, various secure communications

Navigation:

TACAN, ADF, low-light level television, LORAN, distance measuring equipment, GPS, NAVSAT, color plotter. Icebreakers have x-band transponder.

Rescue Equipment:

Hoist, rope, pole litter, scramble nets, Jacobs ladder, flares, EPIRBs, small boats.

Defensive ECM:

Various

Armament:

Various

CSAR SUPPORT ASSETS

The aircraft listed are most likely to assist in a CSAR situation. The capabilities of each aircraft describe the basic performance characteristics, armament, navigation, and communication systems resources that can be used to assists primary or secondary CSAR assets. CSAR mission planners should use this appendix to evaluate the relative capabilities of resources to support a given CSAR operation based on threat levels, distances to the objective area, and availability.

1. ARMY SUPPORT ASSETS

   AH-1
   AH-58
   AH-64

2. AIR FORCE SUPPORT ASSETS

   E-3 (AWACS)
   E-8 (JSTARS)
   EC-130
   A/OA-10
   EA-6B
   F-16
   F-15/F-15E
   RC-135

3. NAVY SUPPORT ASSETS

   E-2C
   S-3B
   ES-3A
   EA-6B
   F-14
   F/A-18

4. MARINE CORPS SUPPORT ASSETS

   AH-1
   AV-8B
   F/A-18
   EA-6B

See Pages G-24 to G-30 for additional information.

SUPPORT ASSETS	E-2C	S-3B	ES-3A	EA-6B	E-3A (AWACS)	EC-130E (ABCCC)
CAPABILITIES (SERVICE)	**(USN)**	**(USN)**	**(USN)**	**(USN/ USMC/ USAF)**	**(USAF)**	**(USAF)**
SPEED (KIAS)	120-190	200-45	320	420-54-0	360	290
ENDURANCE	5 HRS	5.5 HRS	6 HRS	2.5 HRS	9 HRS	8 HRS
AMC CAPABLE	YES	YES	YES	NO	YES	YES
RESCORT		YES				
RESCAP				NO		
SEAD				YES		
AIR REFUELABLE		YES	YES	YES	YES	YES
CSAR TRAINED	YES	YES	YES	YES		YES
NIGHT VISION DEVICES						
ARMAMENT						
GP BOMBS		YES		NO		
HARPOON		YES		NO		
CLUSTER MUNITIONS		YES		NO		
ROCKETS		YES		NO		
LASER GUIDED BOMBS				NO		
HARM				YES		
AIR-TO-AIR MISSILES				NO		
20 MM				NO		
30 MM				NO		

SUPPORT ASSETS	E-2C	S-3B	ES-3A	EA-6B	E-3A (AWACS)	EC-130E (ABCCC)
MINES				NO		
TORPEDOES		YES		NO		
PRECISION-GUIDE-DD MUNITIONS				NO		
ECM	YES	YES	YES	YES		
RESUPPLY CANISTER				NO		
COMMUNICATIONS						
UHF	YES	YES	YES	YES	YES	YES
HF	YES	YES	YES	YES	YES	YES
VHF-FM	YES	YES	YES	YES	YES	YES
VHF-1M	YES	YES	YES	YES	YES	YES
SATCOM	SOME		YES	NO	YES	YES
SECURE	YES	YES	YES	YES	YES	YES
NAVIGATION						
GPS	SOME		YES	NO		
INERTIAL	YES	YES	YES	YES		
TACAN	YES	YES	YES	YES	YES	YES
VOR			YES	NO	YES	YES
ADF				YES	YES	YES
DOPPLER				NO		YES
RADAR	YES	YES	YES	YES	YES	

SUPPORT ASSETS	A/OA-10	F-16	F-15	F-15E
CAPABILITIES (SERVICE)	**(USAF)**	**(USAF)**	**(USAF)**	**(USAF)**
SPEED (KIAS)	300-325	420-540	400-550	400-500
ENDURANCE	2 HRS	.5 HR	1.5 HRS	1.5 HRS
AMC CAPABLE				
RESCORT	YES	YES	YES	YES
RESCAP		YES	YES	SOME
SEAD	YES	SOME		
AIR REFUELABLE	YES	YES	YES	YES
CSAR TRAINED	YES			
NIGHT VISION DEVICES	YES	YES		YES
ARMAMENT				
GP BOMBS	YES	YES		YES
HARPOON				
CLUSTER MUNITIONS	YES	YES		YES
ROCKETS	YES			
LASER GUIDED BOMBS	YES	YES		YES
HARM		SOME		
AIR-TO-AIR MISSILES	YES	YES	YES	YES
20 MM		YES	YES	YES
30 MM	YES			
MINES	YES	YES		YES
TORPEDOES				
PRECISION-GUIDED MUNITIONS	YES	YES		YES

SUPPORT ASSETS	A/OA-10	F-16	F-15	F-15E
ECM	YES	YES	YES	YES
RESUPPLY CANISTER	YES			
COMMUNICATIONS				
UHF	YES	YES	YES	YES
HF				
VHF-FM	YES	YES		
VHF-AM	YES	YES		
SATCOM				
SECURE	YES	YES	YES	YES
NAVIGATION				
INERTIAL	YES	YES	YES	YES
GPS		YES		
TACAN	YES	YES	YES	YES
VOR				
ADF	YES			
DOPPLER				
RADAR		YES	YES	YES

SUPPORT ASSETS	F-14	F/A-18	AV-8B	AH-1	AH-64
CAPABILITIES (SERVICE)	**(USN)**	**(USN/USM-C)**	**(USMC**	**(USMC)**	**(USA)**
SPEED (KIAS)	420-540	420-540	420-540	150-170	130-150
ENDURANCE	1 HR	.5 + HRS	.5 HR	2 HR	2 HR
AMC CAPABLE		YES*	NO	NO	
RESCORT	YES	YES	YES	YES	YES
RESCAP	YES	YES	NO	NO	
SEAD		YES	NO	NO	
AIR REFUELABLE	YES	YES	YES	NO	
CSAR TRAINED	YES	YES	YES	NO	
NIGHT VISION DEVICES	SOME	YES	YES	YES	YES
ARMAMENT					
GP BOMBS	YES	YES	YES	NO	
HARPOON		YES	NO	NO	
CLUSTER MUNITIONS	YES	YES	YES	NO	
ROCKETS		YES	YES	YES	YES
LASER GUIDED BOMBS	YES	YES	YES	NO	
HARM		YES	NO	NO	
AIR-TO-AIR MISSILES	YES	YES	YES	YES	
20 MM	YES	YES	25 MM	YES	
30 MM		NO	NO	NO	YES
MINES		YES	NO	NO	
TORPEDOES		NO	NO	NO	
PRECISION-GUIDED MUNITIONS	YES	YES	YES	YES	YES

SUPPORT ASSETS	F-14	F/A-18	AV-8B	AH-1	AH-64
ECM		YES	YES	YES	YES
RESUPPLY CANISTER		NO	NO	NO	
COMMUNICATIONS					
UHF	YES	YES	YES	YES	YES
HF		NO	NO	NO	
VHF-FM	YES	YES	YES	YES	YES
VHF-AM	YES	YES	YES	YES	YES
SATCOM		NO	NO	NO	
SECURE	YES	YES	YES	YES	YES
NAVIGATION					
INERTIAL	YES	YES	YES	YES	YES
GPS	YES	NO	YES	YES	YES
TACAN	YES	YES	YES	YES	
VOR		NO	NO	NO	YES
ADF		YES	YES	YES	
DOPPLER		NO	NO	YES	
RADAR	YES	YES	YES	NO	YES

*Limited Capability

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APPENDIX H
MISSION BRIEFING GUIDE

1. SITUATION
   Mission statement
   Enemy forces
   Friendly forces
   Weather and/or environmental conditions (e.g., moon phase)
   Time hack

2. ISOLATED PERSONNEL
   Location
   Condition
   Description
   Equipment
   Authentication information

3. START, TAXI, TAKEOFF
   Rendezvous and/or marshal procedures

4. CHAIN OF RESPONSIBILITY
   AMC
   OSC
   RESCORT
   RESCAP
   Rescue Helicopter
   Rescue vehicle
   Indications and warnings (I&W)
   SEAD

5. INGRESS
   Route selection and/or navigation
   En route terrain and/or hazards
   Airspeeds and/or altitudes
   Formations
   RESCORT PLAN
      -patterns and/or positioning
      -air-to-air TACAN
      -route sanitization
   Fire Support
      -engagement responsibilities
      -fire calls
      -response time
      -ordnance load and/or frag patterns

Control measures
Timing
Penetration Checklist
Probable point of first enemy contact
Terminal control of helicopters
RESCAP plan
Authentication priority
Location priority
SEAD plan
I&W priorities
AMC responsibilities
OSC responsibilities

6. LANDING ZONE
Landing direction and/or diagram
Helo gunner coverage
Helicopter land or hover
Fixed-wing coordination and/or cover patterns
Survivor handling procedures

7. EGRESS
Route selection and/or navigation
En route terrain and/or hazards
Airspeeds and/or altitudes
Formations
RESCORT PLAN
-patterns and/or positioning
-air-to-air TACAN
-route sanitization
Fire support
-engagement responsibilities
-fire calls
-response time
-ordnance load-frag patterns
Control measures
Timing
Probable point of last enemy contact

8. COORDINATING INSTRUCTIONS
Go/no-go criteria
Ordnance use
ROE and/or weapons conditions
Scatter plan
Laser conditions
Mission-essential equipment

Aircraft
Personnel
Coordination with receiving medical training facility, if required
Fuel considerations, Joker and/or Bingo
Tanking plan and/or FARP
Data link plan
Coordination with other friendly operations (i.e., fire support coordination lines, minimum risk routes)

9. COMMUNICATIONS PLAN
Emission control condition
Frequencies
Visual signals
Lost communications
Chattermark
IFF
Echo calls

10. DOWNED AIRCRAFT PROCEDURES
Overwater
-Ingress
-Egress
Overland
-Ingress
-Egress

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APPENDIX J
REFERENCES

The development of Joint Pub 3-50.21 is based upon the following primary references.

1. **Joint Doctrine**

   a. Joint Pub 0-2, "Unified Actions Armed Forces (UNAAF)."

   b. Joint Pub 1-01, "Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program."

   c. Joint Pub 1-02, "Department of Defense Dictionary of Military and Associated Terms."

   d. Joint Pub 2-0, "Joint Doctrine for Intelligence Support to Operations."

   e. Joint Pub 2-01, "Joint Intelligence Support to Military Operations."

   f. Joint Pub 2-02, "National Intelligence Support to Joint Operations."

   g. Joint Pub 3-0, "Doctrine for Joint Operations."

   h. Joint Pub 3-05, "Doctrine for Joint Special Operations."

   i. Joint Pub 3-05.3, "Joint Special Operations Operational Procedures."

   j. Joint Pub 3-50, "National Search and Rescue Manual Vol. I: National Search and Rescue System."

   k. Joint Pub 3-50.1, "National Search and Rescue Manual Vol. II: Planning Handbook."

   l. Joint Pub 3-50.2, "Doctrine for Joint Combat Search and Rescue (CSAR)."

   m. Joint Pub 3-50.3, "Joint Doctrine for Evasion and Recovery."

   n. Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone."

   o. Joint Pub 3-53, "Doctrine for Joint Psychological Operations."

   p. Joint Pub 3-56.1, "Command and Control for Joint Air Operations."

   q. Joint Pub 3-58, "Joint Doctrine for Military Deception."

r. CJCSM 3122.03, "Joint Operation Planning and Execution System Vol II: (Planning Formats and Guidance).

s. CJCSM 3122.04, "Joint Operation Planning and Execution System Vol II: (Supplemental Planning and Execution Formats and Guidance)."

2. **CSAR Multi-Service Procedures for Combat Search and Rescue (FM 90-18/FMFRP 2-70/MACP 64-3/TACP 50-51/COMDTINST M1620.8/USAFEP 50-51/PACAFP 50-52) (Upon publication of Joint Pub 3-50.21, these multi-Service publications are rescinded.)**

These publications describe joint force CSAR operations conducted during wartime or other combat operations and training exercises. They describe existing CSAR resources for all Services, define common threat levels, describe specific JSRC operations, identify basic responsibilities for isolated personnel, and detail USMTFs used to support CSAR.

3. **Combat Search and Rescue Procedures**

(USAF Doctrine Document 34/AR 525-90). These regulations review responsibilities of area and unit commanders, and describe various recovery methods. They also describe the composition of a CSARTF and outline communications procedures for rescue forces and isolated personnel.

4. **MAWTS 1 Helicopter Air Combat Maneuvering (ACM) Guide**

This document covers ACM concepts, helicopter versus helicopter and/or fixed-wing ACM and evasive maneuvering, ROE, and training syllabi.

5. **Assault Support Helicopter Tactical Manual. (TACTICS MANUAL)**

This manual is oriented toward Marine aircraft but addresses tactics used in the strike rescue mission, to include: defensive armament and air-to-air techniques; operational guidelines; helicopter tactical planning and employment; mission command, control, and coordination procedures; planning and conducting night operations; tactical flight techniques; and helicopter escorts techniques.

6. **Strike Operations Against Land Targets. (NWP 10-2)**

This publication forms the basis for Air Wing power projection. It covers strike planning procedures and tactics, as well as CSAR tactics.

7. **Strike Rescue Manual. (Navy Supplement to NWP 19-2)**

This is the primary doctrine for Navy Strike Rescue and describes the mission from command organization and structure, intelligence, aircrew procedures, and communication to helicopter rescue mission and fixed-wing support planning.

8. **Mission Employment Tactics, Vertical Lift.**

This manual is classified SECRET and contains specific operational tactics and techniques useful for all rotary-wing assets.

9. **Multi-Service Publications**

a. USAF Doctrine Document 34/AR 525-90/NWP 19-2, "Combat Search and Rescue Procedures."

b. FM 90-18/FMFRP 2-70/MACP 64-3/TACP 50-51/COMDTINST M16120.8/ USAFEP 50-51/PACAFP 50-52/AACP 50-51, "Multi-Service Procedures for Combat Search and Rescue (CSAR)."

10. **Navy Publications**

a. TACTICS MANUALS/FMFM 5-3, "Assault Support Helicopter Tactical Manual."

b. Navy Supp to NWP 19-2, "Combat Search and Rescue Procedures."

11. **Air Force Publications**

a. Air Force Doctrine Document (AFDD)2-1.6, "Combat Search and Rescue Operations."

b. USAF Tactical Deception Study Guide.

c. AFSOCMAN 11-1 Volume 10, "Air Force Special Operations Command Tactical Employment Manual MH-60G PAVEHAWK," Vol III, "Mission Employment Tactics, Vertical Lift."

d. AFSOCM 3-1, Vol IV, "Mission Employment Tactical Employment, C-130."

e. MCM 3-1, Volume III, "Tactical Employment, A-10" (U).

f. FC 90-12, "Deception Operation Planning Guide."

g. MCM 3-1 Vol 24, "Tactical Employment, HH-60."

h. MCM 3-1, Vol 25, "Tactical Employment, C/HC-130."

i. _____, "Combat Air Forces Concept of Operations."

12. **Army Publications**

    a. FM 1-108, "Doctrine for Army Special Operations Aviation Forces."

    b. FM 7-85, "Ranger Unit Operations."

    c. FM 100-25, "ARSOF Doctrine."

    d. FM 31-20, "Doctrine for Army Special Operations Forces."

13. **Multinational Publications**

    a. ATP-10C, "Search and Rescue."

14. **Joint Universal Lessons Learned System**

15. NWP-X-8, "Naval Special Warfare Combat Search and Rescue Operations"

APPENDIX K
ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication to the Joint Warfighting Center, Attn: Doctrine Division, Fenwick Road, Bldg 96, Fort Monroe, VA 23651-5000. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

The lead agent for this publication is the US Air Force. The Joint Staff doctrine sponsor for this publication is the Director for Operations (J-3).

3. Change Recommendations

a. Recommendations for urgent changes to this publication should be submitted:

TO: CSAF WASHINGTON DC//XOXD//
INFO: JOINT STAFF WASHINGTON DC//J7-JDD//

Routine changes should be submitted to the Director for Operational Plans and Interoperability (J-7), JDD, 7000 Joint Staff Pentagon, Washington, DC 20318-7000.

b. When a Joint Staff directorate submits a proposal to the Chairman of the Joint Chiefs of Staff that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Military Services and other organizations are requested to notify the Director, J-7, Joint Staff, when changes to source documents reflected in this publication are initiated.

c. Record of Changes:

CHANGE NUMBER	COPY NUMBER	DATE OF CHANGE	DATE ENTERED	POSTED BY	REMARKS

4. Distribution

a. Additional copies of this publication can be obtained through Service publication centers.

b. Only approved pubs and test pubs are releasable outside the combatant commands, Services, and Joint Staff. Release of any classified joint publication to foreign governments or foreign nationals must be requested through the local embassy (Defense Attaché Office) to DIA Foreign Liaison Office, PSS, Room 1A674, Pentagon, Washington, DC 20301-7400.

c. Additional copies should be obtained from the Military Service assigned administrative support responsibility by DOD Directive 5100.3, 1 November 1988, "Support of the Headquarters of Unified, Specified, and Subordinate Joint Commands."

By Military Services:

Army:	US Army AG Publication Center SL 1655 Woodson Road Attn: Joint Publications St. Louis, MO 63114-6181
Air Force:	Air Force Publications Distribution Center 2800 Eastern Boulevard Baltimore, MD 21220-2896
Navy:	CO, Naval Inventory Control Point 700 Robbins Avenue Bldg 1, Customer Service Philadelphia, PA 19111-5099
Marine Corps:	Marine Corps Logistics Base Albany, GA 31704-5000
Coast Guard:	Coast Guard Headquarters, COMDT (G-OPD) 2100 2nd Street, SW Washington, DC 20593-0001

d. Local reproduction is authorized and access to unclassified publications is unrestricted. However, access to and reproduction authorization for classified joint publications must be in accordance with DOD Regulation 5200.1-R.

GLOSSARY

PART I — ABBREVIATIONS AND ACRONYMS

AAA	antiaircraft artillery
ABCCC	airborne battlefield command and control center
ACM	air combat maneuvering
ADF	automatic direction finding
AM	amplitude modulation
AMC	airborne mission commander
ATO	air tasking order
AWACS	airborne warning and control system
C2	command and control
C4	command, control, communications, and computers
C4I	command, control, communications, computers, and intelligence
CINC	commander of a combatant command
COSPAS	cosmicheskaya sistyema pioska avariznah sudov - space system for search of distressed vessels (Russian satellite system)
CSAR	combat search and rescue
CSARTF	combat search and rescue task force
CSEL	combat survivor evader locator
CTAPS	contingency theater automated planning system
DALS	downed aviator locator system
DDS	dry deck shelter
DF	direction finding
DOD	Department of Defense
DSN	Defense Switched Network
E&E	evasion and escape
E&R	evasion and recovery
ECM	electronic countermeasures
ELT	emergency locator transmitter
EMT	emergency medical treatment
EPA	evasion plan of action
EPIRB	emergency position-indicating radio beacon
EW	electronic warfare
FAC(A)	forward air controller (airborne)
FARP	forward arming and refueling point
FAX	facsimile
FLOT	forward line of own troops
FM	frequency modulation
GCI	ground control intercept
GPS	global positioning system

HAHO	high-altitude high-opening parachute technique
HALO	high-altitude low-opening parachute technique
HF	high frequency
I&W	indications and warning
IFF	identification, friend or foe
IR	infrared
ISOPREP	isolated personnel report
J-3	Operations officer
JAOC	joint air operations center
JFACC	joint force air component commander
JFC	joint force commander
JIPB	joint intelligence preparation of the battlespace
JISE	joint intelligence support element
JSRC	joint search and rescue center
JSSA	Joint Services Survival, Evasion, Resistance, and Escape (SERE) Agency
JSTARS	joint surveillance, target attack radar system
LARS	lightweight airborne recovery system
LORAN	long-range aid to navigation
LOS	line of sight
LZ	landing zone
MHz	megahertz
NAVSAT	navigation satellite
NM	nautical mile
NVD	night vision device
NVG	night vision goggles
OPLAN	operation plan
OSC	on-scene commander
OTH	over the horizon
PLB	personal locator beacon
PLS	personal locator system
PR	personnel recovery
QRP	quick response posture
RCC	rescue coordination center
RESCAP	rescue combat air patrol
RESCORT	rescue escort
ROE	rules of engagement

SAFE	selected area for evasion
SAM	surface-to-air-missile
SAR	search and rescue
SARSAT	search and rescue satellite-aided tracking
SATCOM	satellite communications
SBU	special boat unit
SEAD	suppression of enemy air defenses
SEAL	sea-air-land team
SOF	special operations forces
SPINS	special instructions
SSN	attack submarine, nuclear
TACAN	tactical air navigation
TRAP	tactical recovery of aircraft and personnel (USMC)
UHF	ultra high frequency
USMTF	US message text format
VHF	very high frequency
WMEC	medium-endurance cutter (USCG)

PART II — TERMS AND DEFINITIONS

airborne mission commander. The commander serves as an airborne extension of the executing component's rescue coordination center (RCC) and coordinates the combat search and rescue (CSAR) effort between the combat search and rescue task force (CSARTF) and the RCC (or joint search and rescue center) by monitoring the status of all CSARTF elements, requesting additional assets when needed, and ensuring the recovery and supporting forces arrive at their designated areas to accomplish the CSAR mission. The airborne mission commander (AMC) may be designated by the component RCC or higher authority. The AMC appoints, as necessary, an on-scene commander. Also called AMC. (This term and its definition is approved for inclusion in the next edition of Joint Pub 1-02.)

blood chit. A small cloth chart depicting an American Flag and a statement in several languages to the effect that anyone assisting the bearer to safety will be rewarded. (Joint Pub 1-02)

carrier striking force. A naval task force composed of aircraft carriers and supporting combatant ships capable of conducting strike operations. (Joint Pub 1-02)

combat search and rescue. A specific task performed by rescue forces to effect the recovery of distressed personnel during war or military operations other than war. Also called CSAR. (Joint Pub 1-02)

combat search and rescue task force. All forces committed to a specific combat search and rescue operation to search for, locate, identify, and recover isolated personnel during wartime or contingency operations. This includes those elements assigned to provide command and control and protect the rescue vehicle from enemy air or ground attack. Also called CSARTF. (Upon approval of this publication, this term and its definition will be included in Joint Pub 1-02.)

combined operation. An operation conducted by forces of two or more allied nations acting together for the accomplishment of a single mission. (Joint Pub 1-02)

command and control warfare. The integrated use of operations security, military deception, psychological operations, electronic warfare, and physical destruction, mutually supported by intelligence, to deny information to, influence, degrade, or destroy adversary command and control capabilities, while protecting friendly command and control capabilities against such actions. Command and control warfare is an application of information warfare in military operations and is a subset of information warfare. Command and control warfare applies across the range of military operations and all levels of conflict. Also called C2W. C2W is both offensive and defensive: a. C2-attack. Prevent effective C2 of adversary forces by denying information to, influencing, degrading, or destroying the adversary C2 system. b. C2-protect. Maintain effective command and control of own forces by turning to friendly advantage or negating adversary efforts to deny information to, influence, degrade, or destroy the friendly C2 system. See also command and control; electronic warfare; intelligence; military deception; operations security; psychological operations. (Joint Pub 1-02)

component search and rescue controller. The designated search and rescue representative of a component commander of a joint force who is responsible for

coordinating and controlling that component's search and rescue forces. (Joint Pub 1-02)

crash locator beacon. An automatic emergency radio locator beacon to help searching forces locate a crashed aircraft. See also emergency locator beacon; personal locator beacon. (Joint Pub 1-02)

electronic warfare. Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support. a. electronic attack—That division of electronic warfare involving the use of electromagnetic or directed energy to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability. Also called EA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams). b. electronic protection—That division of electronic warfare involving actions taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP. c. electronic warfare support—That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition. Thus, electronic warfare support provides information required for immediate decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called ES. Electronic warfare support data can be used to produce signals intelligence (SIGINT), both communications intelligence (COMINT), and electronics intelligence (ELINT). (Joint Pub 1-02)

emergency locator beacon. A generic term for all radio beacons used for emergency locating purposes. See also crash locator beacon; personal locator beacon. (Joint Pub 1-02)

evasion and escape. The procedures and operations whereby military personnel and other selected individuals are enabled to emerge from an enemy-held or hostile area to areas under friendly control. Also called E&E. (Joint Pub 1-02)

evasion and escape intelligence. Processed information prepared to assist personnel to escape if captured by the enemy or to evade capture if lost in enemy-dominated territory. (Joint Pub 1-02)

evasion and escape net. The organization within enemy-held or hostile areas that operates to receive, move, and exfiltrate military personnel or selected individuals to friendly control. (Joint Pub 1-02)

evasion and escape route. A course of travel, preplanned or not, that an escapee or evader uses in an attempt to depart enemy territory in order to return to friendly lines. (Joint Pub 1-02)

evasion and recovery. The full spectrum of coordinated actions carried out by evaders, recovery forces, and operational recovery planners to effect the successful return of personnel isolated in hostile territory to friendly control. Also called E&R. (Joint Pub 1-02)

forward arming and refueling point. A temporary facility, organized, equipped, and deployed by an aviation commander, and normally located in the main battle area closer to the area of operation than the aviation unit's combat service area, to provide fuel and ammunition necessary for the employment of aviation maneuver units in combat. The forward arming and refueling point permits combat aircraft to rapidly refuel and rearm simultaneously. Also called FARP. (Joint Pub 1-02)

Identification Friend or Foe personal identifier. The discrete Identification Friend or Foe code assigned to a particular aircraft, ship, or other vehicle for identification by electronic means. (Joint Pub 1-02)

initial point. 1. The first point at which a moving target is located on a plotting board. 2. A well-defined point, easily distinguishable visually and/or electronically, used as a starting point for the bomb run to the target. 3. airborne—A point close to the landing area where serials (troop carrier air formations) make final alterations in course to pass over individual drop or landing zones. 4. helicopter—An air control point in the vicinity of the landing zone from which individual flights of helicopters are directed to their prescribed landing sites. 5. Any designated place at which a column or element thereof is formed by the successive arrival of its various subdivisions, and comes under the control of the commander ordering the move. (Joint Pub 1-02)

isolated personnel. Military or civilian personnel that have become separated from their unit or organization in an environment requiring them to survive, evade, or escape while awaiting rescue or recovery. (Joint Pub 1-02)

joint. Connotes activities, operations, organizations, etc., in which elements of two or more Military Departments participate. (Joint Pub 1-02)

joint force air component commander. The joint force air component commander derives authority from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision). Using the joint force commander's guidance and authority, and in coordination with other Service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to the joint force commander apportionment of air sorties to various missions or geographic areas. Also called JFACC. (Joint Pub 1-02)

joint operations center. A jointly manned facility of a joint force commander's headquarters established for planning, monitoring, and guiding the execution of the commander's decisions. Also called JOC. (Joint Pub 1-02)

joint search and rescue center. A primary search and rescue facility suitably staffed by supervisory personnel and equipped for planning, coordinating, and executing joint search and rescue and combat search and

rescue operations within the geographical area assigned to the joint force. The facility is operated jointly by personnel from two or more Services or functional components or it may have a multinational staff of personnel from two or more allied or coalition nations (multinational search and rescue center). The joint search and rescue center should be staffed equitably by trained personnel drawn from each joint force component, including US Coast Guard participation where practical. Also called JSRC. See also rescue coordination center. (Joint Pub 1-02)

joint search and rescue center director. The designated representative with overall responsibility for operation of the joint search and rescue center. (Joint Pub 1-02)

landing zone. Any specified zone used for the landing of aircraft. Also called LZ. (Joint Pub 1-02)

military deception. Actions executed to deliberately mislead adversary military decisionmakers as to friendly military capabilities, intentions, and operations, thereby causing the adversary to take specific actions (or inactions) that will contribute to the accomplishment of the friendly mission. The five categories of military deception are: a. strategic military deception—Military deception planned and executed by and in support of senior military commanders to result in adversary military policies and actions that support the originator's strategic military objectives, policies, and operations. b. operational military deception—Military deception planned and executed by and in support of operational-level commanders to result in adversary actions that are favorable to the originator's objectives and operations. Operational military deception is planned and conducted in a theater of war to support campaigns and major operations. c. tactical military deception—Military deception planned and executed by and in support of tactical commanders to result in adversary actions that are favorable to the originator's objectives and operations. Tactical military deception is planned and conducted to support battles and engagements. d. Service military deception—Military deception planned and executed by the Services that pertain to Service support to joint operations. Service military deception is designed to protect and enhance the combat capabilities of Service forces and systems. e. military deception in support of operations security (OPSEC)—Military deception planned and executed by and in support of all levels of command to support the prevention of the inadvertent compromise of sensitive or classified activities, capabilities, or intentions. Deceptive OPSEC measures are designed to distract foreign intelligence away from, or provide cover for, military operations and activities. (Joint Pub 1-02)

on-scene commander. The person designated to coordinate the rescue efforts at the rescue site. Also called OSC. (Joint Pub 1-02)

operations security. A process of identifying critical information and subsequently analyzing friendly actions attendant to military operations and other activities to: a. Identify those actions that can be observed by adversary intelligence systems. b. Determine indicators hostile intelligence systems might obtain that could be interpreted or pieced together to derive critical information in time to be useful to adversaries. c. Select and execute measures that eliminate or reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation. Also called OPSEC. See also command and control warfare. (Joint Pub 1-02)

orbit point. A geographically or electronically defined location used in stationing aircraft in flight during tactical operations when a predetermined pattern is not established. (Joint Pub 1-02)

pararescue team. Specially trained personnel qualified to penetrate to the site of an incident by land or parachute, render medical aid, accomplish survival methods, and rescue survivors. (Joint Pub 1-02)

personal locator beacon. An emergency radio locator beacon with a two-way speech facility carried by crew members, either on their person or in their survival equipment, and capable of providing homing signals to assist search and rescue operations. Also called PLB. See also crash locator beacon; emergency locator beacon. (Joint Pub 1-02)

personnel recovery. The aggregation of military, civil, and political efforts to obtain the release or recovery of personnel from uncertain or hostile environments and denied areas whether they are captured, missing, or isolated. That includes US, allied, coalition, friendly military, or paramilitary, and others as designated by the National Command Authorities. Personnel recovery (PR) is the umbrella term for operations that are focused on the task of recovering captured, missing, or isolated personnel from harm's way. PR includes, but is not limited to, theater search and rescue; combat search and rescue; search and rescue; survival, evasion, resistance, and escape; evasion and escape; and the coordination of negotiated as well as forcible recovery options. PR can occur through military action, action by nongovernmental organizations, other US Government-approved action, and/or diplomatic initiatives, or through any of these. Also called PR. (This term and its definition is approved for inclusion in the next edition of Joint Pub 1-02.)

psychological operations. Planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. The purpose of psychological operations is to induce or reinforce foreign attitudes and behavior favorable to the originator's objectives. Also called PSYOP. (Joint Pub 1-02)

rescue combat air patrol. An aircraft patrol provided over a combat search and rescue objective area for the purpose of intercepting and destroying hostile aircraft. Its primary mission is to protect the search and rescue task force during recovery operations. Also called RESCAP. (Joint Pub 1-02)

rescue coordination center. A primary search and rescue facility suitably staffed by supervisory personnel and equipped for coordinating and controlling search and rescue and/or combat search and rescue operations. The facility is operated unilaterally by personnel of a single Service or component. For Navy component operations, this facility may be called a rescue coordination team. Also called RCC (or RCT for Navy component). (Joint Pub 1-02)

safe area. A designated area in hostile territory that offers the evader or escapee a reasonable chance of avoiding capture and of surviving until he can be evacuated. (Joint Pub 1-02)

search and rescue incident classification. Three emergency phases into which an incident may be classified or progress, according to the seriousness of the incident and its requirement for rescue service: a. uncertainty phase—Doubt exists as to the safety of a craft or person because of

knowledge of possible difficulties or because of lack of information concerning progress or position. b. alert phase—Apprehension exists for the safety of a craft or person because of definite information that serious difficulties exist that do not amount to a distress or because of a continued lack of information concerning progress or position. c. distress phase—Immediate assistance is required by a craft or person because of being threatened by grave or imminent danger or because of continued lack of information concerning progress or position after procedures for the alert phase have been executed. (Joint Pub 1-02)

search and rescue mission coordinator. The designated person or organization selected to direct and coordinate support for a specific search and rescue mission. Also called SAR mission coordinator. (Joint Pub 1-02)

search mission. In air operations, an air reconnaissance by one or more aircraft dispatched to locate an object or objects known or suspected to be in a specific area. (Joint Pub 1-02)

special operations forces. Those active and reserve component forces of the military Services designated by the Secretary of Defense and specifically organized, trained, and equipped to conduct and support special operations. Also called SOF. (Joint Pub 1-02)

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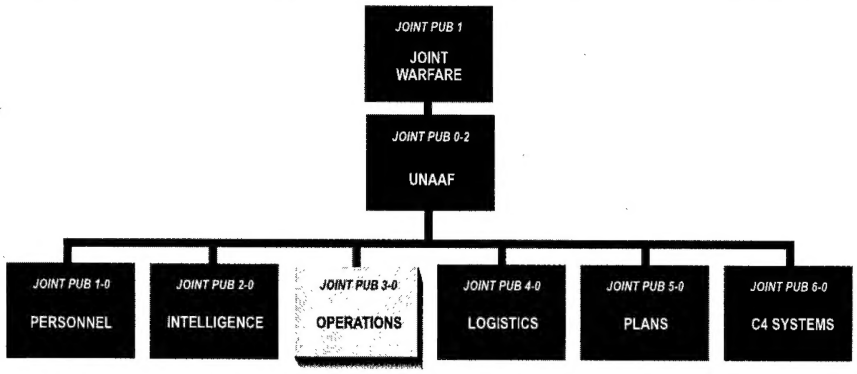

All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. **Joint Pub 3-50.21** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process: